QC
983
A27

VOLUME 60 [W. B. No. 1080] NUMBER 6

MONTHLY WEATHER REVIEW

JUNE, 1932

CONTENTS

	Page
Bibliography	133
Solar Observations	133
Aerological Observations	133
Rivers and Floods	136
Weather on the Atlantic and Pacific Oceans	137
Climatological Tables	138
Charts I–VI	140

UNITED STATES DEPARTMENT OF AGRICULTURE

WEATHER BUREAU

WASHINGTON, D. C.

For sale by the Superintendent of Documents, Washington, D. C. - See page 4 of cover for prices

UNIT
SE

DEPOSITED BY THE
UNITED STATES OF AMERICA
SEP 16 1932

MONTHLY WEATHER REVIEW

Editor, W. J. HUMPHREYS

VOL. 60, NO. 6
W. B. No. 1080

JUNE, 1932

CLOSED AUGUST 3, 1932
ISSUED SEPTEMBER 2, 1932

IMPORTANT NOTICE

Owing to the necessity of drastically reducing the printing cost of the REVIEW to keep within the funds for the fiscal year all "contributions" are omitted in this issue. However, it is hoped that "contributions" may be resumed later.—Editor.

BIBLIOGRAPHY

C. FITZHUGH TALMAN, in Charge of Library

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

Brackett, F. S.
Graphic correlation of radiation and biological data. Washington. 1932. 7 p. fig. 24½ cm. (Smith. misc. coll. v. 87, no. 8.)

Commission belge de l'Année polaire. 1932–1933.
Mémoires publiés sous les auspices et avec le concours du fonds national de la recherche scientifique. Bruxelles. 1932. Fasc. 1. (Mai 1932.) 1. Introduction by E. Lagrange. 2. Programme des travaux météorologiques, by J. Jaumotte. 3. Sur la dynamique des fronts chauds, by J. Jaumotte. 32 p. figs. 24½ cm.

Fabry, Charles, & Buisson, H.
L'absorption des radiations dans la haute atmosphère. Paris. 1930. 64 p. figs. 25½ cm. (Mém. des sci. phys. fasc. 11.)

Galbas, P. A.
Berichte des Strahlungs-klimatologischen Stationsnetzes im deutschen Nordseegebiet. Bd. 2. 1928. [Braunschweig.] n. d. 131 p. illus. plates. 30 cm. (Herausgegeben im Auftrage der Gesellsch. zur Förderung der Klimaforsch. im Nordseegebiet.)

International meteorological organization.
Les messages synoptiques du temps. Leurs codes. Les méthodes de distribution. Listes des stations synoptiques. Météorogrammes transmis par T. S. F. Fasc. 1–3. Leyde. 1932. 24½ cm. (No. 9.)

Jaumotte, J.
Sur le potentiel des vitesses dans l'atmosphère. Bruxelles. 1932. 36 p. 26 cm.

Nanking. National research institute of meteorology. Academia sinica.
Bulletin of the upper air current observations. vol. 1. 1930. Nanking. [1930.]

Neumann, E. Navarro.
De variographo Brébeuf. [Città del Vaticano.] p. 7–9. 26½ cm. (Pont. Acad. sci. Novi Lyncæi. Scient. nunc. radiophon. N. 11. 28 Apr., 1932.)

Pardillo, Francesc.
Les pluges de pols del 30 d'Octobre de 1926 i del 27 de Novembre de 1930 a Catalunya. I. Estudi mineralògic. Barcelona. 1932. 32 p. pl. 23 cm. (Servei met. de Catalunya. Notes d'estudi. N. ° 50.)

Sama Pérez, Nicolas.
Los meteoros . . . Madrid. 1930. 94 p. pl. diagrs. 21 cm.

Sherlock, Robert H.
Measurement of the wind pressures on overhead lines. p. 29–34. illus. 29 cm. (Nat. elec. light assoc., Bull. Jan., 1931.)

Sung, Shio Wang.
Extratropical cyclones of eastern China and their characteristics. Nanking. 1931. 60 p. figs. 27 cm. (Acad. sin. Mem. Nat. res. inst. met'y. no. 3.)

Taylor, Griffith, & Kidson, E.
Australien und Neuseeland. 1. Climatology of Australia, by Griffith Taylor. 2. Climatology of New Zealand, by E. Kidson. Berlin. 1932. vi, p. 81–137. figs. 26½ cm. (Handbuch der Klimatologie. Bd. 4, Teil S.)

SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS DURING JUNE, 1932

By HERBERT H. KIMBALL, in charge, Solar Radiation Investigations
By IRVING F. HAND

For a description of instruments employed and their exposures, the reader is referred to the January, 1932, REVIEW, page 26.

Table 1 shows that solar radiation intensities averaged well above normal for June at Washington, and slightly above at Madison and Lincoln.

Table 2 shows a deficiency in the total solar radiation received on a horizontal surface at Washington, Lincoln, Twin Falls, and La Jolla, and an excess at all other stations.

Table 3 shows high turbidity during June except on very clear days. The increase in turbidity due to the presence of ice crystals, noted when observations were taken near cirri, is well marked. No indication of dust from the rather recent volcanic eruptions in Argentina and Chile has been detected, and it is quite improbable that the atmosphere below the greatest height seemingly reached by this dust, at a point so far south of the Equator, would soon move in quantity to the Northern Hemisphere.

Polarization observations obtained at Washington on five days give a mean of 60 per cent with a maximum of 68 per cent on the 24th. At Madison, observations obtained on seven days give a mean of 62 per cent with a maximum of 73 per cent on the 28th. All of these values are above the average for June.

In order to approach the highest possible degree of accuracy in observations to be utilized for the Polar Year

studies, the International Meteorological Committee of the International Geodetic and Geophysical Union has requested that all pyrheliometers be compared with a standard and substandard instrument. In compliance with this request, the Marvin pyrheliometers in use at Washington, Madison, and Lincoln were compared in June with the Smithsonian silver-disk pyrheliometer No. 1-bis, and this substandard in turn was compared with substandard instruments at the Smithsonian Institution. As a result of these comparisons it was found necessary to change the factors in use at Washington, Madison, and Lincoln by dividing them by 0.972, 0.962, and 0.974, respectively. The new factors will be adopted July 1, 1932.

At the Radiation Conference held in Berlin and Potsdam February 23–26, 1931, Dr. Ångström requested that "observers give accurate information on the opening of their pyrheliometer."[1] The Weather Bureau uses the Marvin electrical pyrheliometer for its routine observations and the Smithsonian silver-disk substandard for field work and check purposes. Table 4 gives the information concerning these two instruments as, requested by Dr. Ångström.

TABLE 1.—*Solar radiation intensities during June, 1932*

[Gram-calories per minute per square centimeter of normal surface]

Washington, D. C.

Date	Sun's zenith distance: 8 a.m.	78.7°	75.7°	70.0°	60.0°	0.0°	60.7°	70.0°	75.7°	78.7°	Noon
	75th mer. time	Air mass: A. M. 5.0	4.0	3.0	2.0		P. M. 2.0	3.0	4.0	5.0	Local mean solar time
	e.	5.0	4.0	3.0	2.0	° 1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
June 1	11.38			0.78	0.96	1.22	0.85				11.48
June 2	11.38					1.17	0.82				9.14
June 3	12.24					1.38					9.83
June 4	12.24				0.81	1.15					15.11
June 7	14.10			0.74	0.83						9.47
June 8	3.30	0.73	0.88	1.02	1.21	1.49	1.27				4.42
June 9	8.81				0.98						9.14
June 10	7.57		0.79	0.98	1.16	1.38					7.04
June 23	13.13			0.85	1.00	1.29	1.06				9.14
June 24	5.16					1.47	1.18				4.37
June 29	13.61			0.87	1.04						12.24
Means		(0.73)	(0.84)	0.87	1.00	1.32	1.04				
Departures		+0.14	+0.17	+0.10	+0.07	+0.09	+0.11				

TABLE 1.—*Solar radiation intensiti during June, 1932*—Continued

Madison, Wis.

Date	Sun's zenith distance: 8 a.m.	78.7°	75.7°	70.0°	60.0°	0.0°	60.7°	70.0°	75.7°	78.7°	Noon
	75th mer. time	Air mass: A. M. 5.0	4.0	3.0	2.0	1.0	P. M. 2.0	3.0	4.0	5.0	Local mean solar time
	e.	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
June 10	7.57				1.04	1.36					8.48
June 15	12.68					0.94					13.13
June 16	13.13				0.87	1.19					11.38
June 22	13.61				1.08	1.36					14.60
June 23	8.18			1.06	1.20	1.44	1.16	0.99			7.29
June 24	10.21			0.91	1.08	1.31					9.83
June 27	12.24				1.10	1.44					10.21
June 28	10.97				1.05	1.36					9.83
Means				(0.98)	1.05	1.29	(1.16)	(0.99)			
Departures				+0.03	−0.04	−0.02	+0.08	+0.08			

Lincoln, Nebr.

June 7	14.60		0.75	0.85	1.06						16.20
June 14	12.68			1.03		1.40					12.24
June 15	12.68		0.77	0.90	1.10	1.31					12.68
June 18	12.68					1.29					11.81
June 22	13.13		0.80	0.95	1.10	1.38	1.11	0.92	0.80		11.38
June 27	12.24		0.97	1.07	1.22	1.43	1.11	0.88	0.82		12.24
June 28	14 10					1.30	1.11	0.92	0.83		13.13
June 29	16.20			0 91	1.13	1.35	1.09	0.89	0.73	0.60	16.20
Means			0.82	0.95	1.12	1.35	1.10	0.90	0.80	(0.60)	
Departures			+0.05	+0.03	+0.02	±0.00	+0.01	±0.00	+0.01	+0.01	

° Extrapolated.

[1] MO. WEATHER REV. 59: 187.

TABLE 2.—*Solar radiation (direct+diffuse) received on a horizontal surface*

[Gram calories per square centimeter]

AVERAGE DAILY TOTALS

Week beginning	Washington	Madison	Lincoln	Chicago	New York	Fresno	Pittsburgh	Fairbanks	Twin Falls	La Jolla	Gainesville	Miami	New Orleans
1932	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
June 3	636	492	539	453	590	732	611	354	474	440	405	508	421
June 10	328	561	517	542	354	737	375	486	576	445		449	395
June 17	387	575	532	567	470	732	516	540	676	474	582	569	399
June 24 [1]	605	500	576	511	545	715	497	482	659	408	534	576	400
DEPARTURES FROM WEEKLY NORMALS													
June 3	+144	−16	−2	+35	+180	+70	+140		−127	+5	−101	−2	
June 10	−161	+61	−6	+123	−51	+63	−107		−68	+26		−58	
June 17	−93	+53	−30	+138	−52	+40	+28		−16	+26	−90	+43	
June 24	+77	+40	−26	+72	+121	+25	+14		−37	−54	+34	+23	
ACCUMULATED DEPARTURES ON JULY 1													
	+2,261	−621	−1,769	+8,612	+9,984	+3,973	+2,926		−6,526	+3,761		+2,550	

[1] 8-day means; leap year.

TABLE 3.—*Solar-radiation measurements, and determinations of atmospheric turbidity factor, β. Washington, D. C., June, 1932*

[Values in italics have been interpolated]

Date and solar hour angle	Solar altitude, h	Air mass, m	I_m gr. cal.	I_y gr. cal.	I_r gr. cal.	β	Blueness of sky	Atmospheric dust particles per c c	Notes (skylight polarization, P) clouds
June 1									
5:42 a	17-00	3.40	0.711	*0.579*	0.491	0.140		772	
5:36 a	18-09	3.20	0.761	0.591	*0.499*	0.120			
5:01 a	24-51	2.39	0.875	0.681	*0.555*	0.140			
4:55 a	25-57	2.28	0.910	*0.689*	0.566	0.130	4		P,=49.9.
0:40 a	71-09	1.05	1.142	*0.778*	0.617	0.165			Fr. Cu. coming up.
0:31 a	71-58	1.05	1.158	0.804	*0.618*	0.160			
June 2									
3:08 p	46-48	1.36	1.049	*0.768*	0.610	0.165		615	
3:16 p	45-16	1.40	1.027	0.765	*0.616*	0.185			
3:57 p	37-20	1.64	0.970	*0.719*	0.579	0.160			
4:01 p	36-22	1.68	0.956	0.712	*0.574*	0.165			
4:21 p	32-30	1.85	0.887	0.670	*0.557*	0.185			
4:24 p	32-04	1.88	0.881	*0.664*	0.550	0.185			
June 4									
4:34 a	30-06	1.99	0.814	*0.643*	0.535	0.200		777	
4:30 a	31-00	1.94	0.839	0.647	*0.538*	0.195			
3:36 a	41-30	1.51	0.982	0.866	*0.604*	0.190			
3:32 a	42-16	1.49	0.994	*0.851*	0.614	0.180			Clouds.
June 7									
5:46 a	16-55	3.47	0.690	*0.547*	0.464	0.125		397	
5:42 a	17-24	3.31	0.701	0.575	*0.470*	0.125			
5:22 a	21-08	2.75	0.790	*0.601*	0.492	0.130			
5:18 a	21-56	2.65	0.780	0.614	*0.498*	0.130			
June 8									
5:55 a	15-00	3.81	0.890	*0.739*	0.594	0.080		441	
5:36 a	18-37	3.12	1.000	*0.753*	0.629	0.065			
5:30 a	19-45	2.97	1.015	0.772	*0.642*	0.070			
5:01 a	25-17	2.32	1.140	*0.842*	0.677	0.065			
4:56 a	26-14	2.26	1.146	0.851	*0.687*	0.065			
4:36 a	30-05	1.98	1.214	0.863	*0.699*	0.065	4		P=63.6.
4:29 a	31-28	1.91	1.231	*0.874*	0.704	0.065			
3:48 a	39-24	1.58	1.330	0.901	*0.724*	0.060			
3:22 a	42-31	1.48	1.340	*0.912*	0.748	0.065			
1:09 a	68-15	1.07	1.430	*0.925*	0.790	0.090			
1:02 a	69-10	1.07	1.450	0.980	*0.795*	0.090			Few Fr. Cu.
0:12 p	73-57	1.04	1.460	0.979	*0.758*	0.055			
0:18 p	73-30	1.04	1.460	*0.973*	0.745	0.050			
2:54 p	49-10	1.30	1.360	*0.956*	0.751	0.070			
2:59 p	48-50	1.32	1.350	0.946	*0.747*	0.070			
3:51 p	38-56	1.58	1.300	*0.901*	0.698	0.060			
4:04 p	36-00	1.70	1.260	0.893	*0.688*	0.060			
4:28 p	31-37	1.90	1.280	0.863	*0.673*	0.030			
4:31 p	31-00	1.94	1.270	*0.858*	0.669	0.030			
June 9									
4:08 a	35-32	1.71	1.093	.804	*.648*	.120		821	
4:02 a	36-43	1.66	1.084	*.809*	.652	.115			
3:20 a	44-52	1.41	1.163	*.846*	.678	.115			
3:15 a	45-47	1.40	1.169	.850	*.681*	.110			Clouds.
June 10									
5:52 a	15-43	3.64	.857	*.686*	.559	.080		888	
5:40 a	17-57	3.23	.938	.708	.570	.065			
5:04 a	24-47	2.37	1.089	.807	*.657*	.075			
4:52 a	27-05	2.19	1.132	*.818*	.668	.075	4		P=58.4.
4:00 a	37-10	1.65	1.229	.881	*.701*	.085			
3:58 a	38-10	1.61	1.236	*.884*	.704	.085			
3:38 a	41-29	1.51	1.268	*.907*	.724	.085			
3:33 a	42-39	1.48	1.273	.912	*.729*	.090			Cirri.
June 23									
2:28 p	55-07	1.22	1.293	*.910*	.704	.110		546	
2:36 p	53-37	1.26	1.330	.903	*.698*	.095			
3:39 p	41-28	1.51	1.266	.858	*.678*	.125			
3:49 p	39-54	1.56	1.250	*.841*	.661	.120			
4:08 p	35-47	1.71	1.173	*.827*	.643	.080			
4:12 p	35-01	1.75	1.195	.824	*.640*	.065			
4:32 p	31-08	1.94	1.086	.767	*.612*	.085			
4:37 p	30-10	1.99	1.051	*.762*	.607	.090	5		P=61.4.
4:40 p	29-36	2.07	1.038	*.754*	.598	.120			
June 24									
3:12 a	46-40	1.38	1.372	.952	*.758*	.070	7	336	P=68.3.
3:02 a	48-36	1.33	1.368	*.954*	.762	.080			Thin cirri.
1:14 a	67-58	1.08	1.482	*.981*	.764	.045			
1:09 a	68-40	1.07	1.471	.985	*.767*	.055			
0:29 a	73-22	1.05	1.455	.950	*.762*	.060			
0:22 a	73-50	1.05	1.466	*.950*	.764	.065			
1:00 p	70-00	1.07	1.446	.949	*.762*	.070			
1:08 p	68-54	1.08	1.425	*.946*	.757	.075			
2:17 p	57-07	1.19	1.407	.909	*.710*	.040			
2:25 p	55-39	1.21	1.384	*.880*	.700	.045			
3:44 p	40-27	1.54	1.298	.861	*.685*	.050			
3:50 p	39-17	1.60	1.290	*.852*	.678	.045			
4:22 p	33-04	1.83	1.226	*.849*	.669	.060			
4:26 p	32-18	1.87	1.234	.842	*.656*	.040			
4:44 p	28-48	2.07	1.154	.831	*.650*	.060			
4:49 p	27-51	2.14	1.129	*.820*	.645	.065			

TABLE 4.—*Approximate characteristics of vestibules of pyrheliometers*

Instrument	A	B	D	$\text{Tan}\frac{\Theta}{2}=\frac{B}{2D}$
	Inches	*Inches*	*Inches*	° ′
Smithsonian S. D. No. 1-bis	1.024	1.457	13.58	6 04
Marvin electrical	1.475	1.775	11.56	8 44

In the above table A=diameter of inner diaphragm, B=diameter of outer diaphragm, D=distance between the two diaphragms, and Θ=the angle of aperture. For more detailed information concerning vestibules and angular openings of various types of instruments, see the MONTHLY WEATHER REVIEW, 55: pp. 49–55.

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, Superintendent United States Naval Observatory. Data furnished by Naval Observatory, in cooperation with Harvard, Yerkes, Perkins, and Mount Wilson Observatories. The differences of longitude are measured from central meridian, positive west. The north latitudes are plus. Areas are corrected for foreshortening and are expressed in millionths of sun's visible hemisphere. The total area, including spots and groups is given for each day in the last column]

Date	Eastern standard civil time	Heliographic: Diff. long.	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day
1932							
	h m	°	°	°			
June 1 (Naval Observatory)	10 48	+85.0	97.7	+4.0	247		247
June 2 (Naval Observatory)	10 33	No spots					
June 3 (Naval Observatory)	10 39	−70.0	276.3	−7.0		185	185
June 4 (Naval Observatory)	10 36	−56.0	277.1	−7.0		185	185
June 5 (Naval Observatory)	11 28	−42.0	277.4	−7.0		185	185
June 6 (Naval Observatory)	10 20	−70.0	236.8	+13.0	62		
		−30.0	276.8	−7.0		185	247
June 7 (Naval Observatory)	12 3	−55.0	237.6	+13.0		46	
		−51.0	241.6	+6.0	15		
		−14.0	278.6	−8.0		185	246
June 8 (Naval Observatory)	10 57	−41.0	239.0	+13.0		46	
		−39.0	241.0	+6.0	12		
		−2.0	278.0	−8.0		247	305
June 9 (Naval Observatory)	10 23	−29.0	238.1	+12.0	9		
		−25.0	242.1	+6.0	6		
		+11.0	278.1	−8.0		247	262
June 10 (Naval Observatory)	10 59	−15.0	238.5	+12.0	6		
		+27.0	280.5	−7.0		185	191
June 11 (Naval Observatory)	10 40	−2.0	238.5	+12.0	6		
		+40.0	280.5	−7.0		185	191
June 12 (Yerkes Observatory)	13 22	+54.0	279.8	−6.3	279		279
June 13 (Perkins Observatory)	13 0	+66.5	279.2	−5.0	138		138
June 14 (Naval Observatory)	13 17	+80.0	279.3	−7.0		185	185
June 15 (Naval Observatory)	14 31	No spots					
June 16 (Naval Observatory)	14 13	−86.0	86.3	+4.0		185	
		−73.0	99.3	0.0		247	432
June 17 (Naval Observatory)	11 1	−70.0	90.8	+3.0		185	
		−61.0	99.8	0.0	216		401
June 18 (Yerkes Observatory)	11 2	−60.9	86.7	+5.0		50	
		−55.4	92.2	+3.4	204		
		−47.5	100.1	+0.2	359		613
June 19 (Mount Wilson)	9 20	−43.5	91.8	+4.0		281	
		−35.0	100.3	0.0	164		445
June 20 (Mount Wilson)	9 0	−30.0	92.2	+4.0		289	
		−22.0	100.2	0.0	158		447
June 21 (Naval Observatory)	14 13	−15.0	91.1	+3.0		309	
		−6.0	100.1	−1.0	139		448
June 22 (Naval Observatory)	14 7	−1.0	91.9	+3.0		247	
		+8.0	100.9	−1.0	93		340
June 23 (Naval Observatory)	13 26	+11.0	91.1	+2.0		340	
		+21.0	101.1	−1.0	108		448
June 24 (Naval Observatory)	10 30	−80.0	348.5	+10.0		123	
		+22.0	90.5	+2.0		340	
		+33.0	101.5	−1.0	25		488
June 25 (Naval Observatory)	10 23	−68.0	347.3	+10.0		154	
		+34.0	89.3	+3.0		216	
		+47.0	102.3	−1.0	15		385
June 26 (Naval Observatory)	14 39	−52.0	347.7	+10.0		154	
		+52.0	91.7	+3.0		185	
		+61.0	100.7	−1.0	3		342
June 27 (Naval Observatory)	11 3	−41.0	347.5	+10.0		154	
		+66.0	94.5	+4.0		185	339
June 28 (Naval Observatory)	11 59	−26.0	348.7	+10.0		154	
		+80.0	94.7	+4.0	123		277
June 29 (Naval Observatory)	12 5	−80.0	281.4	−9.0	123		
		−13.0	348.4	+11.0		247	370
June 30 (Naval Observatory)	10 55	−68.0	280.8	−9.0	93		
		0.0	348.8	+11.0		247	340
Mean daily area for June							299

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR JUNE, 1932

[Data furnished through the courtesy of Prof. W. Brunner, University of Zurich, Switzerland]

(Dependent alone on observations at Zurich and its station at Arosa)

June, 1932	Relative numbers	June, 1932	Relative numbers	June, 1932	Relative numbers
1	8	11	32	21	33
2	0	12	11	22	a 27
3	a c 10	13	8	23	a 31
4	12	14	8	24	
5	12	15	d 8	25	d 40
6	23	16	d 16	26	30
7	33	17	16	27	26
8	39	18	21	28	31
9	a 31	19	28	29	22
10	31	20	26	30	d 24

Mean: 29 days=22.0.

a=Passage of an average-sized group through the central meridian.
b=Passage of a large group or spot through the central meridian.
c=New formation of a center of activity: E, on the eastern part of the sun's disk; W, on the western part; M, in the central zone.
d=Entrance of a large or average-sized center of activity on the east limb.

AEROLOGICAL OBSERVATIONS

[The Aerological Division, W. R. GREGG, in charge]

By L. T. SAMUELS

Free-air temperatures during the month were mostly above normal, the negative departures being of small magnitude. Relative humidity departures were small and unimportant in practically all cases. The largest positive departures occurred at Dallas.

Free-air resultant wind directions for the month were close to normal with the resultant velocities mostly below normal, especially at the southern stations.

Airplane observations were made daily throughout the month at Chicago, Cleveland, Dallas, and Omaha. The greatest mean height (5,659 meters above sea level) was obtained at Dallas, where also the highest single flight (5,967 meters) was made.

TABLE 1.—*Free-air temperatures and relative humidities during June, 1932*

TEMPERATURE

Altitude (meters) m. s. l.	Chicago, Ill. (190 meters) [1]		Cleveland, Ohio (245 meters) [1]		Dallas, Tex. (149 meters) [2]		Ellendale, N. Dak. (444 meters)		Hampton Roads, Va. (2 meters) [3]		Omaha, Nebr. (299 meters) [4]		Pensacola, Fla. (2 meters) [3]		San Diego, Calif. (9 meters) [3]		Washington, D. C. (2 meters) [3]	
	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal
Surface	17.4	[5]	16.4	[5]	22.5	[5]	21.4	+2.7	22.0	−0.7	18.8	[5]	25.2	−0.1	18.8	−1.6	21.1	−1.8
500	18.8	−0.5	18.2	−1.1	23.7	+0.9	20.9	+2.6	20.2	−0.8	19.6	−1.2	23.5	+0.2	15.6	−1.5	19.9	−0.2
1,000	18.1	+2.0	16.9	+0.8	22.1	+1.8	18.1	+2.8	18.3	−0.4	20.1	+2.1	21.1	+0.5	17.2	−0.7	18.3	+0.7
1,500	15.3	+2.1	13.9	+0.7	19.7	+1.7	15.0	+2.3			17.3	+1.9						
2,000	12.6	+2.0	10.4	−0.2	16.8	+1.3	12.0	+2.2	12.8	−0.2	14.5	+1.8	15.7	+0.7	16.7	+0.1	13.2	+1.2
2,500	9.8	+0.9	7.5	−0.4	13.9	+1.0	8.9	+2.0			11.2	+1.5						
3,000	6.8	+1.6	4.7	−0.5	10.8	+0.7	6.0	+1.9	7.8	+0.2	7.8	+1.1	9.8	+0.3	10.9	0	7.8	+1.4
4,000	0.9	+1.1	−1.8	−1.6	4.1	−0.3	1.4	+3.0			1.6	+1.3					2.9	+2.3
5,000	−4.8	+1.3	−8.4	−2.3	−3.0	−1.1	−4.0	+3.5			−4.8	+0.4					−2.5	+2.7

RELATIVE HUMIDITY (PER CENT)

Surface	85	[5]	83	[5]	87	[5]	71	+1	77	+3	89	[5]	84	+4	69	+2	66	+1
500	71	+5	70	+4	76	−1	71	+2	73	+6	79	+11	78	+3	74	0	59	−3
1,000	63	−4	64	−3	68	−1	62	−5	68	+5	60	−4	74	+5	49	−4	52	−7
1,500	63	−3	65	−1	63	+4	63	−1			63	+2						
2,000	60	−2	65	+3	61	+10	62	0	63	+5	57	−1	68	+5	20	−4	52	−7
2,500	58	+1	59	+2	57	+10	59	−2			57	+1						
3,000	59	+6	51	−2	56	+13	58	+1	54	+4	57	+3	62	+10	17	+1	50	−4
4,000	50	+4	49	+3	54	+15	31	−19			48	−4					41	−6
5,000	35	−5	47	+7	52	+9	25	−25			40	−12					31	−6

[1] Temperature and humidity departures based on normals of Royal Center, Ind.
[2] Temperature departures based on normals determined by interpolating between those of Groesbeck, Tex., and Broken Arrow, Okla. Humidity departures based on normal of Groesbeck, Tex.
[3] Naval air stations.
[4] Temperature and humidity departures based on normals of Drexel, Nebr.
[5] Surface departures omitted because of difference in time between airplane observations and those of kites upon which the normals are based.

TABLE 2.—*Free-air resultant winds (meters per second) based on pilot-balloon observations made near 7 a. m. (E. S. T.) during June, 1932*

[Wind from North=360°; East=90°; etc.]

Altitude (meters) m. s. l.	Albuquerque, N. Mex. (1,528 meters)		Bismarck, N. Dak. (518 meters)		Brownsville, Tex. (12 meters)		Burlington, Vt. (132 meters)		Cheyenne, Wyo. (1,873 meters)		Chicago, Ill. (195 meters)		Cleveland, Ohio (245 meters)		Dallas, Tex. (154 meters)		Due West, S. C. (217 meters)		Havre, Mont. (762 meters)		Jacksonville, Fla. (14 meters)		Key West, Fla. (11 meters)	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
	°		°		°		°		°		°		°		°		°		°		°		°	
Surface	25	0.7	225	0.3	145	3.0	184	2.2	273	2.1	203	0.4	187	1.2	165	2.3			251	1.1	214	1.2	141	1.9
500					161	11.4	231	4.1			232	1.5	235	1.8	196	7.0					248	5.2	143	3.7
1,000			227	4.1	168	11.0	285	5.2			242	1.6	280	3.3	208	8.7			251	3.7	257	3.9	154	3.2
1,500			230	4.7	162	8.1	299	6.1			284	3.1	285	6.3	209	5.5			264	5.0	265	2.8	167	3.5
2,000	6	1.2	249	4.3	154	6.7	306	7.4	268	2.9	283	4.5	288	7.4	222	5.1			274	4.9	246	2.6	183	3.8
2,500	283	2.4	237	6.3	140	5.2	304	7.2	257	3.8	293	5.7	292	9.1	238	4.5			272	6.2	236	2.2	175	3.9
3,000	262	3.7	229	6.2	126	4.0	298	9.7	281	5.1	294	7.4	283	9.5	241	4.4			271	6.3	218	2.5	170	4.2
4,000	260	5.2	242	8.3	62	3.6	296	12.4	288	5.0	273	3.9	292	10.0	261	5.0			262	10.7	277	2.0	161	4.5
5,000	264	7.0			7	6.6			273	6.7			307	14.2	274	7.9			261	13.9	34	0.6	162	3.9

Altitude (meters) m. s. l.	Los Angeles, Calif. (217 meters)		Medford, Oreg. (410 meters)		Memphis, Tenn. (85 meters)		New Orleans, La. (25 meters)		Oakland, Calif. (8 meters)		Oklahoma City, Okla. (402 meters)		Omaha, Nebr. (306 meters)		Phoenix, Ariz. (356 meters)		Salt Lake City, Utah (1,294 meters)		Sault Ste. Marie, Mich. (198 meters)		Seattle, Wash. (14 meters)		Washington, D. C. (10 meters)	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
	°		°		°		°		°		°		°		°		°		°		°		°	
Surface	99	1.1	297	0.4	172	1.0	235	0.6	350	0.7	176	3.2	153	8.8	81	1.1	145	2.3	333	0.1	151	0.8	258	0.2
500	129	1.6	288	0.6	218	4.6	236	3.4	292	3.1	194	4.0	211	2.7	248	1.6			29	1.6	52	1.1	287	4.7
1,000	354	1.2	312	1.5	228	4.6	208	2.6	342	6.0	212	8.1	227	4.7	275	4.1			336	2.6	52	0.9	302	6.1
1,500	314	2.6	26	1.0	226	3.6	181	3.2	355	4.8	224	6.7	229	3.2	280	3.5	148	3.1	315	3.7	301	1.7	290	7.4
2,000	301	1.0	37	2.0	240	4.2	179	2.3	3	4.1	234	5.8	248	2.9	252	2.2	182	1.6	304	4.0	289	1.9	280	7.5
2,500	282	1.0	288	1.0	243	3.5	180	1.6	334	3.6	244	4.3	242	2.9	211	2.9	227	1.0	317	6.3	272	2.1	281	9.3
3,000	252	0.6	264	2.2	262	3.7	232	0.7	333	4.4	244	4.2	275	2.8	201	4.5	284	1.3	321	7.7	262	4.3	288	9.7
4,000			260	4.5	261	3.3	328	2.8	335	5.9	295	6.4	284	5.1	233	5.2	292	5.4	331	7.1	238	4.0	298	9.7
5,000							270	4.0	340	6.4			296	4.0					329	8.9				

RIVERS AND FLOODS

By MONTROSE W. HAYES

[In charge River and Flood Division]

The most noteworthy floods in June were in the North Canadian River in Oklahoma and the Columbia River in Oregon and Washington.

On the night of June 2–3 heavy rains occurred in the lower part of the North Canadian River Valley, over a belt about 30 miles wide and 70 miles long. The average of the rain recorded by the three gages in the belt was 7.75 inches; this amount fell in the nine hours beginning at 9 p. m. of June 2. As the rain occurred at night no warnings of the flood were distributed. Nine persons were drowned.

The flood in the Columbia River was caused by melting snow. By the end of March the accumulated snowfall over the drainage area was the greatest since 1928, and in many places it was the greatest in the last 10 years. The snow melted gradually, however, and the crest this year in the lower Columbia was not much greater than the average annual spring crest.

Table of flood stages in June, 1932

[All dates in June unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	*Feet*			*Feet*	
Cape Fear: Elizabethtown, N. C	22	14	16	23.4	15
Santee: Rimini, S. C	12	14	18	13.4	16
Savannah: Ellenton, S. C	14	14	25	18.0	20
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Des Moines:					
Boone, Iowa	20	19	19	20.1	19
Ottumwa, Iowa	9	27	27	9.8	27
Missouri Basin					
Floyd: Merrill, Iowa	13	9	9	15.0	9
Grand:					
Gallatin, Mo	20	3	5	26.7	4
Chillicothe, Mo	18	4	6	24.55	5
Brunswick, Mo	12	5	7	13.2	6
		21	26	13.8	24
Osage: Quenemo, Kans	30	21	21	30.44	21
Missouri: Waverly, Mo	23	21	24	24.0	23
Arkansas Basin					
Neosho: Le Roy, Kans	18	22	22	18.2	22
North Canadian:					
Woodward, Okla	6	27	27	6.8	27
Canton, Okla	6	28	28	6.3	28
Oklahoma City, Okla	10	3	3	13.3	3
WEST GULF OF MEXICO DRAINAGE					
Pecos: Fort Sumner, N. Mex	5	28	28	5.2	28
GULF OF CALIFORNIA DRAINAGE					
Roaring Fork: Carbondale, Colo	5	16	18	5.3	16
		22	28	5.6	25
Colorado:					
Parker, Ariz	7	May 1	(1)	12.0	May 30–31
Yuma, Ariz	28	3	5	28.4	4–5
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
Columbia:					
Marcus, Wash	24	May 7	(1)	35.0	18, 19, 26, 27
Vancouver, Wash	15	May 10	(1)	21.6	May 25

[1] Continued into July.

Statement of flood losses

MISSISSIPPI SYSTEM

UPPER MISSISSIPPI BASIN-DES MOINES RIVER IN IOWA

Tangible property totally or partially destroyed	$24,000
Matured crops	250
Prospective crops (4,260 acres)	42,600
Suspension of business, including wages of employees	1,000

MISSOURI BASIN

FLOYD RIVER IN IOWA

Tangible property totally or partially destroyed	2,000
Matured crops	1,000
Livestock and other movable property	100

GRAND RIVER IN MISSOURI

Tangible property totally or partially destroyed	150
Matured crops	450
Prospective crops (7,050 acres)	18,900
Livestock and other movable property	200
Suspension of business, including wages of employees	5,100

MISSOURI RIVER IN MISSOURI

Prospective crops (200 acres)	1,500
Suspension of business, including wages of employees	500

ARKANSAS BASIN

NORTH CANADIAN RIVER IN OKLAHOMA

Tangible property totally or partially destroyed	730,000
Matured crops	80,000
Prospective crops	235,000
Livestock and other movable property	6,500

GULF OF CALIFORNIA DRAINAGE

COLORADO RIVER IN CALIFORNIA

Tangible property totally or partially destroyed	10,000
Matured crops	100
Prospective crops (100 acres)	1,000
Livestock and other movable property	1,000
Suspension of business, including wages of employees	200

PACIFIC SLOPE DRAINAGE

COLUMBIA BASIN

KOOTENAI RIVER IN IDAHO

Tangible property totally or partially destroyed	7,500
Prospective crops	13,200

COLUMBIA RIVER IN OREGON AND WASHINGTON

Tangible property totally or partially destroyed	8,600
Matured crops	13,700
Prospective crops	11,800
Livestock and other movable property	500
Suspension of business, including wages of employees	28,000

Estimated value of property saved by warnings

Grand River in Missouri	1,500
Missouri River in Missouri	1,000
Colorado River in California	5,000
Columbia River in Oregon and Washington	256,920

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, W. F. McDONALD, in Charge]

NORTH ATLANTIC OCEAN

By F. A. YOUNG

Atmospheric pressure.—The North Atlantic HIGH was well developed during the greater part of the month, although there was an intrusion of low pressure over that region during the last five days. The Icelandic LOW from the 1st to 25th was considerably weaker than usual, although after the latter date and until the end of the month it increased in intensity. With only minor exceptions, the conditions over the Atlantic as a whole were comparatively featureless, with slight pressure gradients.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, June, 1932*

Stations	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Julianehaab, Greenland	29.99	-------	30.40	4,5	29.44	13
Reykjavik, Iceland	29.98	+0.10	30.35	18	29.36	10
Lerwick, Shetland Islands	30.05	+0.25	30.45	15	29.46	27
Valencia, Ireland	30.06	+0.06	30.39	23	29.48	30
Lisbon, Portugal	30.05	+0.02	30.18	6	29.84	14
Madeira	30.11	+0.04	30.19	19	29.97	14
Horta, Azores	30.18	−0.06	30.31	1,8	29.88	30
Belle Isle, Newfoundland	29.87	+0.03	30.20	17	29.56	16
Halifax, Nova Scotia	29.85	−0.12	30.30	18	29.38	24
Nantucket	29.88	−0.10	30.31	7	29.41	18
Hatteras	29.95	−0.06	30.25	1	29.56	7
Bermuda	30.09	−0.04	30.22	12, 13	29.82	7
Turks Island	30.01	−0.02	30.08	15, 16	29.88	2
Key West	29.95	−0.04	30.09	18	29.82	7
New Orleans	29.94	−0.04	30.13	18	29.73	8
Cape Gracias, Nicaragua	29.84	−0.08	29.90	16, 18	29.76	21

NOTE.—All data based on a. m. observations only with departures compiled from best available normals related to time of observations except Nantucket, Hatteras, Key West, and New Orleans, which are 24-hour corrected means.

Cyclones and gales.—June is ordinarily one of the quietest months over the North Atlantic, and the current month was very much below the normal in number of days with gales.

One vessel encountered a severe local thunder squall with heavy rain in the evening of the 18th near the American coast between Jacksonville and Savannah. Another vessel reported a northerly wind, force 10, on the morning of the 19th, near 40° N., and 58° 39′ W., but did not render a storm report.

In addition to these two, only 10 vessels forwarded gale reports, the highest force of wind being 9.

Fog.—Fog was unusually prevalent, especially over the western section of the ocean, and the number of days on which it occurred in different localities is as follows: Over the Grand Banks, from 7 to 9 days; between the fortieth and forty-fifth parallels and fortieth to fifty-fifth meridans, from 8 to 20 days; between the thirty-fifth and forty-fifth parallels, and sixtieth meridian and American coast, from 3 to 15 days; along the coast of Nova Scotia and Newfoundland, from 4 to 6 days; over the steamer lanes, between the twentieth and forty-fifth meridians, from 2 to 10 days; along the coast of Europe, from 1 to 2 days.

Transatlantic aviation.—Stanislaus P. Hausner took off from Floyd Bennett field at 8.46 a. m. on June 3, and made a forced landing at 9 p. m. (G. M. T.) on the same day when near 42° N., 20° W. He was rescued at 10 p. m. June 11 by a crew from the British tank S. S. *Circe Shell*, Captain Wilson. An examination of the daily weather maps shows that favorable conditions prevailed over the eastern Atlantic from the 3d to 11th.

OCEAN GALES AND STORMS, JUNE, 1932

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN			° ′	° ′				*Inches*					
Sarcoxie, Am. S. S.	Havre	New York	47 48 N	26 28 W	June 1	8p., 1	June 2	29.73	WSW.	WSW, 7	NW.	NW, 9	WSW–NW.
Odenwald, Ger. M. S.	Hamburg	Canal Zone	42 37 N	19 08 W	June 2	Noon, 2	do	29.91	W.	W, 7	NW.	NNW, 8	W–NW.
City of Alton, Am. S. S.	Rotterdam	New York	42 04 N	57 16 W	June 11	1p., 11	June 12	29.85	W.	W, 7	W.	W, 8	Steady.
Hazelwood, Br. S. S.	Swansea	Quebec	53 12 N	46 16 W	do	1p., 12	June 13	28.95	SSE.	SSE, 5	WNW.	ENE, 9	SSE–ENE.
Winnebago, Br. S. S.	Manchester	New York	48 19 N	40 49 W	June 16	11p., 16	June 16	29.67	SSE.	S, 5	S.	SSE, 8	S–SW.
Executive, Am. S. S.	Gibraltar	do	41 23 N	55 50 W	June 18	8p., 18	June 19	29.52	ENE.	NE, 7	N.	NE, 9	Steady.
NORTH PACIFIC OCEAN													
Makawao, Am. S. S.	San Francisco	Lanai, T. H.	37 28 N	123 35 W	June 3	10p., 3	June 4	29.65	NNW.	NNW, 8	NNW.	NNW, 8	Steady.
Point Ancha, Am. S. S.	San Pedro	New Orleans	17 48 N	103 02 W	June 18	3p., 18	June 19	29.70	ESE.	ESE, 8	SSE.	ESE, 9	SE–S.
Texas, Am. S. S.	Dairen	San Francisco	46 44 N	143 58 W	do	4a, 19	do	28.93	SE.	S, 7	WSW.	W, 9	S–WSW.
Silverash, Br. M. S.	Borneo	San Pedro	34 50 N	124 15 W	June 16	4p., 16	June 17	30.19	NNW.	NNW, 8	WNW.	NNW, 8	NNW–WNW.
Kurama Maru, Jap. M. S.	Yokohama	Los Angeles	46 55 N	166 30 W	June 23	3p., 23	June 24	29.38	SE.	SSE, 8	SW.	SSE, 8	SSE–S.
Silvermaple, Br. M. S.	Gorontalo	Portland	47 07 N	139 50 W	June 29	2p., 29	June 30	29.51	E.	SSE, 8	WSW.	SW, 8	SSE–SW.
Melville Dollar, Am. S. S.	Manila	Los Angeles	43 40 N	146 30 W	do	8a, 29	June 29	29.58	S.	SSW.	W.	WSW, 8	S–SSW.
INDIAN OCEAN													
Sangstad, Nor. M. S.	Bunbury	Las Palmas	33 30 S	28 40 E	June 7	2p., 7	June 8	[1]29.73	WSW.	WSW, 11	WSW.	WSW, 11	Steady.

[1] Barometer uncorrected.

NORTH PACIFIC OCEAN, JUNE, 1932

By WILLIS E. HURD

Atmospheric pressure.—The Aleutian LOW filled rapidly during June and became, on the average, only a shallow depression over the western Gulf of Alaska. Lower pressures prevailed over tropical waters near both continents, the depression southeast of Asia being the deepest on the average for the month. (See Table 1.)

The North Pacific HIGH occupied a normal position east of the one hundred and seventieth meridian of east longitude.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, June, 1932, at selected stations*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Point Barrow	30.10	+0.11	30.52	25	29.82	29
Dutch Harbor	29.93	+0.03	30.36	4	29.38	11
St. Paul	29.95	+0.11	30.34	5	29.34	11
Kodiak	29.86	−0.05	30.28	8	29.24	1
Juneau	29.98	−0.03	30.27	7	29.44	20
Tatoosh Island	30.06	+0.04	30.27	8	29.87	13
San Francisco	29.90	−0.06	30.14	1	29.63	3
Mazatlan	29.81	−0.09	29.88	30	29.70	26–27
Honolulu	30.06	+0.02	30.17	16	29.92	28
Midway Island	30.06	+0.01	30.18	16	29.90	2
Guam	29.87	0.00	29.96	18	29.76	28
Manila	29.78	−0.04	29.88	21	29.68	12–30
Naha	29.75	0.00	29.94	1	29.60	11–12
Chichishima	29.86	−0.05	30.12	1	29.68	7
Nemuro			30.24	9	29.74	25

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Cyclones and gales.—No important cyclones occurred during June in northern Pacific waters. Gales were exceptionally infrequent, and only one was reported from the western half of the ocean. Scattered gales of force 8 to 9 occurred on the 19th, 20th, 23d, and 29th along the eastern half of the northern trans-Pacific steamship route. Fresh gales were experienced off the Oregon and upper California coasts on the 3d, 4th, 16th, and 25th.

Tropical cyclones.—Several LOWS formed in tropical waters of the Far East, but none appears to have developed storm intensity.

One cyclone occurred in Mexican west coast waters. The vessel reports concerning it indicate progressive movement on three successive days (17th to 19th), but do not indicate its full force. The American steamship *Pennsylvanian* mentioned disturbed weather and a fresh southeast gale south or southwest of the Gulf of Tehuantepec on the 17th. The British motorship *Athelmonarch* at noon of the 18th, in 16° 33′ N., 100° 52′ W., reported frequent squalls, some of hurricane force, with barometer depressed to 29.52 inches (uncorrected), later dropping 0.04 inch. She proceeded northwestward in east to northeast gales until noon of the 19th, when, south of Manzanillo, wind changes indicated the cyclone was passing her to the westward. The continuation of this storm is reported in a press dispatch dated at Los Angeles, June 21, as follows:

A hurricane that at times attained 130 miles an hour raged 24 hours along the coast of Lower California and Mexico, according to advices received to-day by Mackay Radio from the fishing schooner *Europa*.

Fog.—Fog occurred on 2 to 5 days along the northern sailing routes east of latitude 175° E., and on 3 to 10 days, to the westward. It was reported off the Lower California and California coasts on 8 to 12 days.

CLIMATOLOGICAL TABLES

CONDENSED CLIMATOLOGICAL SUMMARY

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course, the number of such records is smaller than the total number of stations.

Condensed climatological summary of temperature and precipitation by sections, June, 1932

[For description of tables and charts, see REVIEW, January, p. 37]

Section	Temperature								Precipitation					
	Section average	Departure from the normal	Monthly extremes						Section average	Departure from the normal	Greatest monthly		Least monthly	
			Station	Highest	Date	Station	Lowest	Date			Station	Amount	Station	Amount
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	79.0	+0.8	Eufaula	102	23	St. Bernard	55	3	5.00	+0.60	Mentone	9.01	Greensboro	1.96
Arizona	75.5	−1.7	Gila Bend	120	27	2 stations	22	1 2	0.34	−0.02	Crown King	2.51	9 stations	0.00
Arkansas	78.9	+2.0	2 stations	103	1 19	Dutton	50	11	4.86	+0.76	Center Point	9.15	Blytheville	0.75
California	67.7	+0.2	Greenland Ranch	120	24	Twin Lakes	16	6	0.18	−0.14	Seven Oaks	1.79	84 stations	0.00
Colorado	60.9	−0.9	Fruita	101	24	2 stations	18	1 7	1.60	+0.12	Springfield	7.85	Delta	0.12
Florida	80.1	+0.3	2 stations	102	1 22	Garniers (near)	59	5	8.34	+1.69	Jacksonville	23.32	Arcadia	3.43
Georgia	78.5	+0.6	Millen	107	24	2 stations	46	1 1	6.52	+2.04	Meldrim	16.07	Griffin	2.22
Idaho	61.7	+0.8	Indian Cove	105	22	Atlanta	24	1	1.35	+0.15	Felt	4.18	Potlatch	0.01
Illinois	73.8	+2.2	Sparta	102	18	Kankakee	41	9	3.97	+0.01	Quincy	8.97	Carmi	1.03
Indiana	72.9	+1.6	Edwardsport	100	30	Wheatfield	37	9	4.64	+0.76	Vevay (near)	8.80	Mount Vernon	0.66
Iowa	72.0	+3.0	Guthrie Center	99	7	3 stations	48	1 9	5.17	+0.59	Oskaloosa	12.29	Rock Rapids	2.12
Kansas	73.4	+0.6	Winfield	105	17	2 stations	45	1 1	5.73	+1.65	Tribune	11.48	Republic	2.16
Kentucky	74.8	+1.0	Greenville	103	22	Farmers	40	9	4.88	+0.63	Burnside	8.77	Uniontown	1.03
Louisiana	81.5	+1.5	Alexandria	104	8	2 stations	58	13	2.92	−1.90	Abbeville	8.60	Port Eads	0.17
Maryland-Delaware	70.8	0.0	2 stations	95	1 4	Grantsville, Md	30	8	3.81	−0.14	Friendsville, Md	6.80	Frederick, Md	1.24
Michigan	65.9	+2.3	Howard City	98	6	Wolverine	28	8	2.38	−0.74	Atlanta	6.59	Deer Park	0.40
Minnesota	68.3	+4.4	Mapleplain	101	6	2 stations	34	1 10	2.73	−1.33	Tracy	6.56	Detroit Lakes	0.67
Mississippi	80.5	+1.7	Columbus	105	23	Water Valley	58	11	3.43	−0.76	Grenada	9.97	Woodville	1.28
Missouri	75.2	+2.0	Campbell	103	24	Kirksville	47	5	4.95	+0.08	Joplin	14.12	Caruthersville	1.57
Montana	61.7	+2.0	Crow Agency	101	22	Pleasant Valley (near).	26	5	3.07	+0.37	Adel (near)	9.15	Lonepine	0.33
Nebraska	70.2	+1.2	Alma	103	30	2 stations	36	1 3	4.25	+0.47	Hastings	8.81	Hull (near)	0.50
Nevada	66.5	+0.8	Las Vegas	113	1 23	Sharp	22	6	1.00	+0.54	San Jacinto	3.15	Beatty	0.02
New England	63.6	−0.2	2 stations	94	1 20	Garfield, Vt	23	8	2.46	−0.89	Cream Hill, Conn	8.59	Shelburne Falls, Mass.	0.91
New Jersey	69.3	+0.8	Newton	98	5	2 stations	30	8	3.68	+0.02	Sussex	6.59	Flemington	1.83
New Mexico	67.1	−1.6	Orogrande	110	13	4 stations	22	1 1	1.56	+0.21	Bueyeros	7.49	8 stations	0.00
New York	64.9	+0.2	Scarsdale	95	5	Indian Lake	25	8	3.23	−0.47	Rifton	7.53	Hemlock	0.50
North Carolina	74.5	+0.7	3 stations	100	1 22	Mount Mitchell	42	1 1	4.74	−0.05	Mount Holly	8.44	Avenons	1.00
North Dakota	67.0	+4.5	2 stations	98	24	Willow City	34	30	3.83	+0.38	Powers Lake	8.22	Hillsboro	1.11
Ohio	71.0	+1.9	do	96	1 5	Millport	34	8	3.79	−0.07	Franklin	8.57	Toledo	1.11
Oklahoma	77.1	−0.1	Altus	106	18	Boise City	45	1 1	7.50	+3.85	Meeker	18.87	Goodwell	2.70
Oregon	61.2	+1.7	Blitzen	113	28	Seneca	13	6	0.49	−0.71	Danner	2.38	4 stations	0.00
Pennsylvania	68.5	+0.6	Lewisburg	98	1 7	2 stations	26	8	3.15	−1.03	Mount Pocono	7.08	2 stations	0.73
South Carolina	77.6	+0.2	Blackville	103	23	do	51	1 1	6.30	+1.43	Beaufort (near)	13.33	Heath Springs	2.21
South Dakota	69.0	+3.2	Aberdeen	100	24	Dupree	34	9	3.77	+0.30	Winner	8.06	Ardmore	0.69
Tennessee	76.7	+2.1	4 stations	100	20	2 stations	46	9	4.31	+0.04	Moscow	11.34	Union City	1.08
Texas	80.6	+0.4	Presidio	112	14	Clint	43	1	3.05	−0.15	Throckmorton	10.13	2 stations	0.00
Utah	63.1	−1.2	St. George	107	1 23	Great Basin Experiment Station (Alpine).	14	7	1.01	+0.37	Park Valley	2.55	Kanosh	0.03
Virginia	72.6	+0.9	Christchurch	101	26	Dante	38	6	3.63	−0.62	Dante	9.05	Mineral	0.96
Washington	62.4	+2.1	2 stations	102	1 13	Mount Baker Lodge	24	5	0.59	−0.99	Mount Baker Lodge	4.40	2 stations	0.00
West Virginia	70.1	+1.3	Charleston	99	20	Piedmont	29	1 8	4.46	+0.07	Clay	9.01	Wellsburg	1.73
Wisconsin	67.6	+3.3	Friendship	99	17	2 stations	28	8	2.94	−1.07	Richland Center	6.66	Oconto	1.00
Wyoming	58.7	+0.6	Wamsutter	104	23	Foxpark	23	8	1.97	+0.35	Bechler River	6.39	Foxpark	0.16
Alaska (May)	41.8	−0.5	Fairbanks (near)	75	21	Barrow	0	17	1.51	+0.05	View Cove	11.85	2 stations	0.00
Hawaii	73.7	−0.4	Waipahu	94	3	Kanalohuluhulu	44	22	4.23	−0.37	Puu KuKui (upper)	23.00	4 stations	0.00
Puerto Rico	79.0	+1.1	Manati	97	10	Guineo Reservoir	53	19	7.74	+1.50	La Fe	21.59	Cabo Rojo	0.81

[1] Other dates also.

TABLE 1.—*Climatological data for Weather Bureau stations, June, 1932*

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station, reduced to mean of 24 hours	Pressure: Sea level, reduced to mean of 24 hours	Pressure: Departure from normal	Temperature of the air: Mean max. + mean min. ÷ 2	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Mean wet thermometer	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Days with .01, or more	Wind: Total movement	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month
New England	*Ft.*	*Ft.*	*Ft.*	*In.*	*In.*	*In.*	*°F.*	*°F.*	*°F.*		*°F.*	*°F.*		*°F.*	*°F.*	*°F.*	*°F.*	*%*	*In.*	*In.*		*Miles*								*0–10*	*In.*	*In.*
							63.3	**−0.3**										**76**	**2.31**	**−0.7**											**5.7**		
Eastport	76	67	85	29.76	29.84	−0.09	55.2	+0.1	81	15	64	40	8	46	34	51	48	79	1.56	−1.4	11	6,489	s.	27	sw.	25	2	12	16	7.4	0.0	0.0
Greenville, Me	1,070	6		28.70	29.85		59.8		84	20	72	35	2	48	42				1.38		13	3,650	nw.	17		8	7	11	12		0.0	0.0
Portland, Me	103	82	117	29.74	29.86	−.09	63.2	+0.7	83	28	72	42	8	54	31	56	50	67	1.57	−1.7	10	6,030	w.	23	nw.	9	12	10	8	4.7	0.0	0.0
Concord	289	70	79	29.57	29.87	−.09	63.0	+0.1	86	15	75	38	8	51	40				2.13	−1.1	11	3,969	w.	18	sw.	9	11	14	5	4.3	0.0	0.0
Burlington	403	11	48	29.44	29.87	−.09	63.6	−2.1	85	15	74	38	8	54	35				2.49	−0.9	13	6,123	s.	24	se.	21	9	7	14	6.0	0.0	0.0
Northfield	876	12	60		29.88	−.08	60.1	−1.2	85	20	73	30	8	47	44			75	1.80	−1.4	14	4,855	s.	22	n.	7	4	15	11	6.8	0.0	0.0
Boston	125	106	165	29.74	29.88	−.08	66.4	−0.1	88	28	76	42	8	57	29	59	53	66	2.05	−0.8	11	5,546	sw.	24	w.	23	7	15	8	5.4	0.0	0.0
Nantucket	12	14	90	29.87	29.88	−.10	62.1	+1.1	78	30	69	44	19	55	20	58	56	85	3.56	+0.9	11	9,263	sw.	33	n.	7	9	9	12	6.1	0.0	0.0
Block Island	26	11	46	29.86	29.89	−.08	61.8	0.0	77	30	68	46	8	56	22	59	57	88	2.25	−0.4	11	9,289	sw.	46	nw.	23	8	11	11	6.1	0.0	0.0
Providence	160	215	251	29.71	29.88	−.09	66.2	−2.1	87	5	76	41	8	57	29	61	57	74	2.44	−0.2	11	7,458	nw.	56	nw.	23	14	9	7	4.7	0.0	0.0
Hartford	159	122		29.72	29.89	−.08	67.3	+0.2	89	5	77	43	8	58	30				3.42	+0.3	12		s.				7	13	10	5.9	0.0	0.0
New Haven	106	74	153	29.79	29.90	−.07	67.0	+0.4	87	27	76	43	8	58	26	60	56	70	2.16	−0.9	12	5,825	s.	30	nw.	23	6	14	10	5.8	0.0	0.0
Middle Atlantic States							**70.9**	**+0.6**										**70**	**3.19**	**−0.4**										**5.6**		
Albany	97	107	115	29.78	29.88	−.09	67.4	−0.6	88	15	77	41	8	58	32	59	54	66	2.24	−1.1	12	4,979	s.	26	n.	7	14	10	6	4.6	0.0	0.0
Binghamton	871	10	84	29.00	29.92	−.05	66.2	+0.6	86	5	77	37	8	56	38				2.42	−1.0	12	4,018	nw.	21	w.	23	1	12	17	7.5	0.0	0.0
New York	314	414	454	29.57	29.90	−.08	69.0	+0.2	88	5	78	47	8	61	28	61	56	69	3.57	+0.2	7	8,721	sw.	40	nw.	23	8	11	11	5.8	0.0	0.0
Bellefonte	1,050	5	42	28.82	29.91		66.0		88	4	78	31	8	54	38	60	56	72	2.40		13		w.				5	14	11	6.0	0.0	0.0
Harrisburg	374	94	104	29.51	29.90	−.09	70.8	+0.5	92	26	80	45	8	61	28	62	57	66	3.31	−0.3	11	4,975	w.	28	nw.	23	8	12	10	5.6	0.0	0.0
Philadelphia	114	123	367	29.79	29.91	−.07	72.6	+1.2	92	26	81	50	8	64	25	63	57	63	3.39	+0.2	10	8,229	sw.	34	n.	7	9	9	12	5.7	0.0	0.0
Reading	325	81	103	29.56	29.90		70.5	+0.7	92	26	80	44	8	61	29	62	56	64	4.10	+0.6	11	4,408	sw.	21	w.	23	7	9	14	6.0	0.0	0.0
Scranton	805	72	103	29.09	29.94	−.04	67.3	−0.5	87	26	78	38	8	57	34	60	54	66	3.24	−0.4	11	4,546	sw.	25	nw.	23	5	14	11	5.7	0.0	0.0
Atlantic City	52	37	172	29.86	29.91	−.07	68.5	+1.9	90	22	75	46	8	62	27	63	60	79	3.74	+0.7	11	10,311	sw.	34	w.	7	9	10	11	5.9	0.0	0.0
Cape May	17	13	49				69.0	+1.3	90	22	78	46	8	60	29	64	62	80	3.33	+0.3	11		se.				6	16	8		0.0	0.0
Sandy Hook	22	10	55	29.87	29.89		68.6		87	6	76	50	8	61	24	62	59	75	3.55	−0.2	8	8,223	w.	40	w.	27	10	9	11	5.5	0.0	0.0
Trenton	190	159	183	29.70	29.90		70.3	+0.8	92	26	80	44	8	60	28	62	57	66	3.49	+0.4	12	6,770	sw.	30	w.	23	9	7	14	5.5	0.0	0.0
Baltimore	123	100	215	29.78	29.90	−.09	73.6	+0.9	93	26	83	52	8	64	27	65	59	65	2.91	−1.0	10	6,658	sw.	28	nw.	7	11	10	9	5.6	0.0	0.0
Washington	112	62	85	29.79	29.91	−.09	73.2	+1.0	93	27	83	49	8	63	35	65	59	66	2.84	−1.3	9	4,393	sw.	19	sw.	27	13	10	7	4.8	0.0	0.0
Cape Henry	18	8	54	29.91	29.93		74.5	+1.6	95	28	82	54	1	67	28	68	65	78	2.41	−1.6	7	7,615	sw.	32	nw.	28	10	12	8	5.3	0.0	0.0
Lynchburg	681	153	188	29.20	29.92	−.09	74.0	−0.6	93	5	85	53	8	63	34	65	61	67	2.54	−1.2	8	4,615	w.	32	n.	7	14	8	8	4.8	0.0	0.0
Norfolk	91	170	205	29.85	29.95	−.05	75.4	+1.0	91	23	84	58	9	67	27	68	65	76	3.26	−1.0	11	8,128	s.	32	w.	28	10	9	11	5.6	0.0	0.0
Richmond	144	11	52	29.79	29.93	−.08	74.1	0.0	92	6	84	52	8	64	34	67	64	74	3.17	−0.7	9	5,292	sw.	24	nw.	26	10	12	8	5.2	0.0	0.0
Wytheville	2,304	49	55	27.63	29.92	−.09	68.4	−0.3	86	25	80	45	9	57	36	62	58	74	3.89	−0.3	12	4,095	w.	21	w.	27	6	17	7	5.6	0.0	0.0
South Atlantic States							**77.4**	**+1.0**										**78**	**6.94**	**+2.3**										**5.8**		
Asheville	2,253	89	104	27.67	29.94	−.07	72.1	+3.4	90	25	84	51	1	61	31	64	60	73	2.83	−1.1	15	4,420	nw.	24	s.	12	10	19	1	4.3	0.0	0.0
Charlotte	779	55	62	29.13	29.95	−.06	77.5	+2.0	95	22	87	60	1	68	27	69	65	73	7.01	+2.8	11	3,299	sw.	18	w.	18	6	17	7	5.8	0.0	0.0
Greensboro	886	6	56	29.01	29.95		74.4		92	6	85	52	2	64	35	67	64	75	6.36		9	5,096	sw.	28	w.	28	5	15	10	6.0	0.0	0.0
Hatteras	11	5	50	29.94	29.94	−.07	76.4	+0.8	89	23	82	58	1	71	19	71	69	81	2.23	−2.3	8	8,593	sw.	30	sw.	14	9	12	9	5.2	0.0	0.0
Raleigh	376	103	146	29.55	29.94	−.07	76.4	+0.7	93	28	86	59	1	67	26	68	65	74	7.15	+2.8	11	5,740	sw.	32	nw.	28	8	12	10	5.7	0.0	0.0
Wilmington	72	73	106	29.88	29.96	−.05	76.8	0.0	94	23	84	58	1	70	21	72	70	83	3.85	−1.2	15	6,642	sw.	26	nw.	22	10	11	9	5.6	0.0	0.0
Charleston	48	11	92	29.90	29.95	−.06	79.0	+0.1	95	23	85	66	2	73	22	74	72	83	6.59	+2.0	16	7,761	sw.	35	e.	18	6	10	14	6.6	0.0	0.0
Columbia, S. C	351	41	57	29.57	29.95	−.06	78.7	+0.6	97	23	88	61	2	69	26	71	68	76	5.56	+1.4	12	4,760	sw.	26	sw.	11	8	16	6	5.6	0.0	0.0
Greenville, S. C	1,039	139	146	28.87	29.94		76.2	+2.1	95	23	85	62	16	67	26	68	65	75	4.96	+0.4	15	5,257	ne.	25	s.	12	4	18	8	6.0	0.0	0.0
Augusta	182	62	77	29.74	29.93	−.08	80.4	+1.7	100	23	90	64	2	70	25	72	69	75	3.71	−1.0	14	3,938	s.	24	n.	10	9	6	15	6.0	0.0	0.0
Savannah	65	150	194	29.88	29.95	−.06	79.2	+0.2	99	23	88	62	1	71	27	73	71	83	9.14	+3.8	21	7,896	s.	58	w.	15	4	12	14	6.6	0.0	0.0
Jacksonville	43	209	245	29.91	29.96	−.05	78.8	−1.1	97	24	86	66	9	72	23	73	71	82	23.32	+18.0	19	7,438	s.	32	sw.	15	6	13	11	6.5	0.0	0.0
Florida Peninsula							**81.4**	**+0.7**										**80**	**7.38**	**+1.3**										**6.6**		
Key West	22	10	64	29.93	29.95	−.04	82.4	+0.5	90	14	88	65	2	77	17	77	75	79	5.14	+0.9	11	6,239	se.	32	s.	9	6	14	10	6.0	0.0	0.0
Miami	25	124	168	29.95	29.98	−.02	81.3	+1.3	90	16	86	69	2	76	15	75	73	79	8.49	+1.6	15	6,398	se.	30	sw.	9	0	12	18	7.6	0.0	0.0
Tampa	35	88	197	29.93	29.96	−.05	80.6	+0.4	95	18	88	66	18	73	29	74	72	82	8.52	+1.3	17	6,804	w.	39	ne.	18	1	15	14	6.6	0.0	0.0
Titusville	44	5		29.91	29.96		80.8		96	25	89	66	4	73	22				11.16		15		se.				6	11	13	6.3	0.0	0.0
East Gulf States							**79.6**	**+1.1**										**76**	**5.00**	**+0.3**										**5.1**		
Atlanta	1,173	190	198	28.74	29.95	−.06	76.9	+0.9	93	23	86	62	1	68	24	69	66	73	5.31	+1.6	13	5,646	w.	30	w.	30	6	14	10	5.7	0.0	0.0
Macon	370	76	84	29.56	29.94	−.07	78.8	−0.1	98	23	88	59	2	69	27	71	68	77	6.04	+2.0	14	4,428	s.	21	nw.	16	5	11	14	6.4	0.0	0.0
Thomasville	273	49	103	29.67	29.96	−.04	79.2	−0.3	96	26	88	63	2	70	25	72	70	82	8.02	+2.6	16	5,232	sw.	21	e.	18	3	10	17	7.1	0.0	0.0
Apalachicola	36	11	51	29.91	29.95		80.2		91	19	86	67	2	74	22	75	73	78	5.03	−0.6	12	5,864	sw.	22	e.	2	12	13	5	4.5	0.0	0.0
Pensacola	56	149	185	29.89	29.95	−.04	79.3	0.0	89	28	85	64	10	74	20	74	72	79	4.93	+0.2	8	7,995	w.	43	sw.	9	18	11	1	3.2	0.0	0.0
Anniston	741	9	57				78.2	+3.2	97	23	90	59	4	67	31				4.63		12		s.	15	nw.	20	5	16	9		0.0	0.0
Birmingham	700	11	48	29.20	29.95	−.04	79.2	+1.3	98	23	90	63	4	69	29	70	67	74	6.70	+2.2	11	4,120	s.	25	n.	24	11	14	5	4.8	0.0	0.0
Mobile	57	125	161	29.88	29.94	−.05	81.6	+1.3	95	29	90	67	4	73	22	74	71	76	2.66	−2.8	9	5,784	sw.	26	nw.	14	12	17	1	4.1	0.0	0.0
Montgomery	223	100	112	29.70	29.94	−.06	80.3	+0.7	98	23	90	65	3	71	24	71	68	74	7.62	+3.8	16	4,784	sw.	32	ne.	8	7	20	3	5.2	0.0	0.0
Corinth	469	6					80.0		100	22	91	61	10	69	30				7.04		13		sw.				4	23	3		0.0	0.0
Meridian	375	87	95	29.54	29.93	−.05	79.4	+1.3	94	24	89	62	15	70	24	71	68	73	2.92	−1.6	9	4,043	sw.	26	nw.	14	11	16	3	4.3	0.0	0.0
Vicksburg	247	65	73	29.67	29.94	−.03	81.0	+2.0	95	23	90	67	13	72	23	72	69	72	2.02	−2.0	8	4,834	sw.	19	s.	24	6	18	6	5.7	0.0	0.0
New Orleans	53	76	84	29.88	29.94	−.04	82.2	+1.6	96	19	90	66	10	74	26	74	71	73	3.73	−2.2	11	4,730	sw.	26	w.	10	8	20	2	4.8	0.0	0.0
West Gulf States							**81.0**	**+1.2**										**73**	**2.85**	**−0.6**										**4.7**		
Shreveport	249	204	220	29.63	29.89	−.07	82.8	+2.1	99	8	93	67	11	73	25	72	67	66	3.27	−0.2	4	6,762	s.	34	w.	11	13	15	2	4.1	0.0	0.0
Bentonville	1,303	11	44	28.53	29.86	−.08	75.2	+1.1	92	19	85	59	11	65	30				5.28		16	3,750	s.	21	sw.	21	18	10	2		0.0	0.0
Fort Smith	457	79	94	29.39	29.86	−.08	79.6	+2.1	98	20	90	63	1	70	30	71	67	71	7.49	+3.8	14	4,669	e.	29	se.	1	5	16	9	5.9	0.0	0.0
Little Rock	357	136	153	29.53	29.89	−.07	79.8	+2.4	96	20	89	63	14	71	25	71	67	70	3.70	−0.1	10	5,539	s.	30	nw.	8	4	14	12	6.7	0.0	0.0
Austin	605	136	148	29.24	29.87		82.5	+1.3	97	15	92	63	10	73	28	73	69	69	1.88	−0.6	9	6,653	se.	32	n.	10	12	13	5	4.7	0.0	0.0
Brownsville	57	83	100	29.79	29.85		82.0	−0.4	95	12	89	72	23	75	23	75	74	81	3.48	+0.6	5	8,629	se.	28	se.	2	18	7	5	3.9	0.0	0.0
Corpus Christi	20	11	78	29.86	29.88	−.03	81.9	+0.9	90	15	87	70	10	77	17	76	74	82	1.78	−0.8	8	9,574	se.	47	s.	3	11	9	10	5.1	0.0	0.0
Dallas	512	220	227	29.34	29.88		80.5		96	15	90	63	11	71	30				2.67	−1.2	8	7,667	se.	50	w.	8	13	11	6	4.0	0.0	0.0
Fort Worth	670	106	114	29.15	29.85	−.07	80.8	+0.9	97	15	91	63	6	71	31	72	68	70	3.04	−0.3	7	6,919	s.	37	nw.	8	7	12	11	5.5	0.0	0.0
Galveston	54	106	114	29.83	29.89	−.06	81.2	+0.5	90	14	86	65	10	77	18	75	73	80	1.82	−2.6	7	7,560	se.	35	se.	2	15	10	5	4.0	0.0	0.0
Houston	138	292	314	29.77	29.91		81.8	+0.4	95	28	90	67	10	74	25				2.14	−2.4	8	8,143	s.	34	n.	21	8	16	6	5.2	0.0	0.0
Palestine	510	64	72	29.38	29.90	−.04	81.1	+2.1	96	23	91	64	12	72	24	72	68	71	1.44	−2.2	6	5,563	s.	26	s.	29	11	12	7	4.7	0.0	0.0
Port Arthur	34	58	66	29.87	29.91		82.4		94	23	89	67	11	76	23	75	72	76	1.51	−3.3	5	5,950	s.	20	n.	11	17	13	0	3.6	0.0	0.0
San Antonio	693	242	301	29.14	29.84	−.06	82.2	+1.2	99	16	92	61	10	72	31	72	69	69	1.94	−0.5	6	9,625	se.	49	nw.	12	13	16	1	4.0	0.0	0.0
Taylor	571	38	51	29.32	29.92	.00	81.5	+1.5	97	28	91	64	10	72	28				3.69	+1.6	8	6,963	se.	26	n.	9	15	12	3	3.8	0.0	0.0

TABLE 1.—*Climatological data for Weather Bureau stations, June, 1932*—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station, reduced to mean of 24 hours	Pressure: Sea level, reduced to mean of 24 hours	Pressure: Departure from normal	Temperature of the air: Mean max. + mean min. ÷ 2	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Mean wet thermometer	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Days with .01, or more	Wind: Total movement	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month
	Ft.	*Ft.*	*Ft.*	*In.*	*In.*	*In.*	° *F.*	° *F.*	°*F.*		°*F.*	°*F.*		°*F.*	°*F.*	° *F.*	° *F.*	%	*In.*	*In.*		*Miles*								*0–10*	*In.*	*In.*
Ohio Valley and Tennessee							**74.4**	**+1.6**										**69**	**4.51**	**+0.6**										**5.5**		
Chattanooga	762	190	215	29.15	29.94	−0.06	77.0	+1.6	95	24	87	59	10	67	28	69	65	73	4.91	+0.8	14	4,674	sw.	34	sw.	26	7	16	7	5.8	0.0	0.0
Knoxville	995	102	111	28.90	29.93	−.07	76.8	+2.8	95	22	87	60	1	66	26	67	64	71	4.49	+0.4	12	4,237	sw.	30	n.	18	10	13	7	5.2	0.0	0.0
Memphis	399	78	86	29.49	29.90	−.07	79.8	+2.2	96	20	88	63	11	72	28	71	67	69	4.16	+0.6	10	4,612	sw.	25	nw.	21	7	13	10	5.6	0.0	0.0
Nashville	546	168	191	29.37	29.94	−.05	77.8	+2.2	95	22	87	61	12	68	27	68	64	67	2.91	−1.1	11	5,403	w.	41	ne.	18	7	15	8	5.6	0.0	0.0
Lexington	989	193	230	28.91	29.95	−.05	73.8	+1.6	89	5	83	55	8	65	24	----	----	----	6.80	+2.8	14	7,495	e.	34	sw.	27	12	15	3	4.1	0.0	0.0
Louisville	525	188	234	29.36	29.94	−.04	75.2	+0.5	91	22	84	54	9	66	26	67	63	71	2.78	−1.0	13	5,915	n.	43	sw.	1	5	14	11	6.2	0.0	0.0
Evansville	431	76	116	29.45	29.91	−.06	77.6	+2.5	94	18	87	59	9	68	25	68	64	67	1.79	−2.2	7	5,668	sw.	30	s.	1	8	11	11	5.9	0.0	0.0
Indianapolis	822	194	230	29.04	29.91	−.06	73.8	+2.2	90	30	84	51	8	64	32	65	60	65	5.94	+2.3	8	6,373	sw.	27	nw.	20	8	19	3	5.1	0.0	0.0
Terre Haute	575	96	129	29.30	29.90	------	74.6	------	91	30	85	53	9	65	31	66	61	68	8.71	+4.8	12	5,435	ne.	27	ne.	18	11	11	8	5.1	0.0	0.0
Cincinnati	627	11	51	29.26	29.93	−.06	73.4	+2.2	91	19	84	51	8	63	31	65	61	71	5.48	+1.8	13	4,249	sw.	27	ne.	7	8	10	12	5.8	0.0	0.0
Columbus	822	216	230	29.06	29.92	−.07	72.5	+1.6	92	5	83	48	8	62	31	63	58	65	4.38	+1.1	10	6,369	sw.	29	sw.	26	10	14	6	5.1	0.0	0.0
Dayton	899	137	173	28.98	29.91	------	72.9	+1.5	90	5	83	49	8	63	29	65	60	68	7.22	+3.4	12	5,276	sw.	30	sw.	25	8	19	3	4.9	0.0	0.0
Elkins	1,947	59	67	27.96	29.95	−.05	66.6	−0.3	86	20	79	37	9	54	40	60	57	76	3.26	−1.8	12	3,553	nw.	30	sw.	27	4	15	11	6.3	0.0	0.0
Parkersburg	637	77	82	29.30	29.95	−.05	73.1	+1.7	91	30	84	48	9	62	36	64	59	67	4.05	0.0	12	3,805	se.	28	sw.	27	10	12	8	5.5	0.0	0.0
Pittsburgh	842	353	410	29.04	29.92	−.07	71.0	+0.3	89	20	81	46	8	61	28	62	56	62	0.78	−3.0	8	6,368	w.	42	s.	20	2	16	12	6.7	0.0	0.0
Lower Lake Region							**67.7**	**+1.0**										**67**	**2.00**	**−1.4**										**5.2**		
Buffalo	767	243	280	29.08	29.90	−.07	64.7	+0.3	89	20	71	45	8	58	23	59	55	73	1.47	−1.4	9	8,760	sw.	40	sw.	24	6	17	7	5.6	0.0	0.0
Canton	448	10	61	29.39	29.86	------	64.0	−1.8	86	20	75	38	8	53	33	----	----	----	2.82	−0.5	15	5,228	w.	30	sw.	21	8	13	9	5.8	0.0	0.0
Ithaca	836	74	100	29.01	29.89	------	66.2	0.0	87	20	77	38	8	55	37	59	54	66	2.97	−0.6	14	5,797	nw.	27	nw.	23	5	14	11	6.3	0.0	0.0
Oswego	335	71	85	29.53	29.89	−.08	64.1	−0.7	87	21	72	47	8	56	23	58	54	72	1.77	−1.5	11	5,895	w.	30	nw.	21	3	16	11	6.5	0.0	0.0
Rochester	523	86	102	29.35	29.91	−.06	67.6	+1.5	89	20	77	45	24	58	29	59	53	62	1.45	−1.6	5	5,906	w.	32	sw.	21	8	16	6	4.9	0.0	0.0
Syracuse	596	65	79	29.28	29.92	−.05	67.2	+0.3	88	21	76	44	8	58	27	----	----	----	3.74	−0.1	12	4,938	s.	30	nw.	23	8	12	10	5.6	0.0	0.0
Erie	714	130	166	29.16	29.91	−.07	67.2	+1.0	86	20	75	46	8	60	22	62	58	72	1.20	−2.1	8	8,082	w.	38	sw.	2	14	8	8	4.4	0.0	0.0
Cleveland	762	267	337	29.10	29.91	−.07	69.1	+2.0	86	18	76	52	8	62	22	61	56	64	1.88	−1.2	6	7,607	n.	33	n.	11	13	9	8	4.8	0.0	0.0
Sandusky	629	5	67	29.26	29.93	−.05	70.8	+2.0	91	22	80	50	9	62	30	----	----	----	1.18	−2.3	5	5,281	ne.	26	sw.	2	8	15	7	5.0	0.0	0.0
Toledo	628	208	243	29.25	29.92	−.05	70.5	+1.8	89	25	80	45	8	62	29	62	57	63	1.11	−2.2	7	6,918	w.	28	sw.	2	16	8	6	3.8	0.0	0.0
Fort Wayne	856	100	119	29.00	29.91	------	71.0	+2.5	89	25	81	46	8	61	30	63	57	64	3.10	−0.5	10	5,836	sw.	25	w.	25	11	11	8	4.9	0.0	0.0
Detroit	730	218	258	29.15	29.92	−.05	70.3	+2.9	89	20	80	46	8	61	26	62	57	64	1.35	−2.2	6	6,432	sw.	25	sw.	29	10	16	4	4.8	0.0	0.0
Upper Lake Region							**65.3**	**+2.8**										**70**	**1.96**	**−1.3**										**5.0**		
Alpena	609	13	89	29.26	29.92	−.04	62.4	+2.0	84	6	71	43	24	54	30	57	53	73	1.19	−2.1	10	6,709	nw.	31	nw.	23	13	11	6	4.4	0.0	0.0
Escanaba	612	54	60	29.26	29.92	−.02	63.0	+2.3	81	6	72	43	8	54	28	57	53	72	2.04	−1.2	7	5,930	s.	26	s.	30	10	13	7	4.9	0.0	0.0
Grand Haven	632	54	89	29.23	29.89	−.07	66.4	+2.7	84	17	75	43	8	58	28	62	58	71	0.47	−2.5	5	5,981	w.	24	nw.	23	9	12	9	5.1	0.0	0.0
Grand Rapids	707	70	244	29.15	29.90	−.07	70.5	+2.7	88	17	81	46	8	60	27	62	56	62	2.27	−1.2	12	6,676	se.	43	sw.	30	8	12	10	5.5	0.0	0.0
Houghton	668	64	99	29.20	29.92	−.02	62.4	+2.4	82	16	73	41	8	52	29	----	----	----	2.38	−0.4	6	6,337	e.	26	n.	21	12	8	10	5.0	0.0	0.0
Lansing	878	6	88	28.98	29.90	------	67.7	+1.3	86	17	79	41	24	57	34	62	59	73	1.24	−2.3	8	5,339	w.	21	w.	22	7	16	7	5.2	0.0	0.0
Ludington	637	60	66	29.21	29.90	------	65.0	+4.5	82	15	74	44	8	56	24	60	56	71	3.20	+0.3	11	5,812	n.	25	s.	30	19	10	1	2.9	0.0	0.0
Marquette	734	77	111	29.12	29.91	−.03	61.3	+2.4	84	17	70	39	8	53	28	55	51	69	0.87	−2.4	6	4,890	w.	31	sw.	18	9	13	8	5.5	0.0	0.0
Port Huron	638	79	120	29.23	29.92	−.05	66.0	+1.8	85	22	75	44	24	57	30	59	55	71	2.37	−0.4	10	5,146	n.	30	nw.	23	12	10	8	5.0	0.0	0.0
Sault Sainte Marie	614	11	52	29.23	29.92	−.04	61.5	+2.9	85	17	72	41	8	51	32	55	50	68	1.41	−1.5	9	5,251	nw.	27	nw.	22	15	11	4	4.1	0.0	0.0
Chicago	673	7	131	29.20	29.91	−.05	70.6	+3.3	89	22	78	52	9	63	26	63	60	74	4.79	+1.5	12	6,042	ne.	30	nw.	30	8	13	9	5.5	0.0	0.0
Green Bay	617	109	141	29.24	29.90	−.05	68.5	+3.6	86	16	79	45	8	58	29	61	56	66	1.76	−1.9	8	6,010	se.	27	s.	30	8	11	11	5.6	0.0	0.0
Milwaukee	681	97	221	29.18	29.91	−.04	69.1	+5.2	88	30	76	52	1	62	23	61	57	69	1.67	−1.7	8	6,641	e.	27	se.	18	10	14	6	4.8	0.0	0.0
Duluth	1,133	5	47	28.70	29.90	−.02	60.0	+2.8	84	14	70	43	2	50	33	54	50	75	1.72	−2.2	7	7,148	ne.	32	w.	18	6	12	12	6.2	0.0	0.0
North Dakota							**67.8**	**+4.6**										**71**	**4.11**	**+0.3**										**4.9**		
Moorhead	940	50	58	28.85	29.84	−.06	68.9	+4.5	90	6	80	50	23	58	31	62	58	68	2.16	−1.9	6	5,421	s.	31	nw.	30	6	13	11	6.0	0.0	0.0
Bismarck	1,674	8	57	28.09	29.84	−.03	67.5	+3.8	86	21	78	49	1	57	30	61	57	71	2.57	−0.8	8	6,588	se.	38	nw.	30	12	12	6	4.3	0.0	0.0
Devils Lake	1,478	11	44	28.29	29.83	−.05	67.6	+5.7	85	6	78	50	18	57	28	61	58	76	4.16	+0.6	13	6,102	se.	39	nw.	30	10	10	10	5.2	0.0	0.0
Ellendale	1,457	10	56	28.32	29.85	------	67.0	------	90	24	78	49	1	56	31	----	----	----	4.67	+0.1	8	7,547	se.	46	s.	1	11	10	9	5.0	0.0	0.0
Grand Forks	833	12	67	----	----	----	69.6	----	90	6	82	47	27	58	33	62	----	----	2.27	----	10	----	se.	42	nw.	30	6	16	8	----	0.0	0.0
Williston	1,878	41	48	27.88	29.82	−.04	67.0	+4.3	90	23	78	50	26	56	33	60	55	70	6.98	+3.6	13	5,334	ne.	35	nw.	30	16	8	6	4.2	0.0	0.0
Upper Mississippi Valley							**73.7**	**+3.2**										**70**	**3.96**	**−0.2**										**5.7**		
Minneapolis	918	102	208	28.89	29.85	------	72.3	+4.8	93	24	82	56	8	63	32	----	----	----	1.56	−2.7	9	6,633	se.	32	se.	17	5	11	14	6.2	0.0	0.0
St. Paul	837	114	149	28.98	29.87	−.05	72.2	+5.1	93	6	82	54	19	62	32	----	----	----	2.20	−1.9	10	5,380	se.	32	nw.	30	10	11	9	5.2	0.0	0.0
La Crosse	714	11	48	29.12	29.87	−.06	71.3	+3.0	91	30	82	54	24	61	31	64	61	74	3.61	−0.5	13	2,961	s.	16	sw.	24	5	11	14	6.5	0.0	0.0
Madison	974	70	78	28.87	29.89	−.05	70.4	+3.2	87	22	79	51	8	61	24	63	59	68	3.15	−0.6	12	4,917	se.	21	se.	1	7	15	8	5.9	0.0	0.0
Wausau	1,247	4	62	28.60	29.91	------	68.2	----	87	15	80	46	8	56	34	----	----	----	1.95	−2.1	8	4,257	se.	24	w.	30	18	8	4	3.8	0.0	0.0
Charles City	1,015	10	51	28.83	29.88	−.03	71.5	+5.0	93	30	82	56	21	61	30	64	61	74	4.77	+0.1	16	4,098	se.	21	sw.	30	6	14	10	5.7	0.0	0.0
Davenport	606	118	143	29.25	29.90	−.04	74.2	+3.7	93	30	84	57	8	64	26	65	61	69	7.05	+2.9	17	5,131	e.	41	sw.	2	6	12	12	6.5	0.0	0.0
Des Moines	861	5	99	28.98	29.87	−.05	73.6	+3.0	94	30	83	61	3	64	29	66	62	71	3.40	−1.4	12	5,655	se.	36	n.	17	7	10	13	6.3	0.0	0.0
Dubuque	700	81	96	29.15	29.89	−.04	72.1	+2.7	90	22	82	56	8	63	28	64	61	71	4.09	−0.2	13	4,003	se.	28	nw.	17	7	8	15	6.2	0.0	0.0
Keokuk	614	64	78	29.24	29.90	−.04	74.5	+2.0	94	30	84	58	2	65	26	66	62	68	5.51	+1.4	13	4,325	e.	38	w.	17	5	13	12	6.1	0.0	0.0
Cairo	358	87	93	29.52	29.89	−.08	78.2	+1.9	97	22	87	63	9	69	25	69	65	70	1.78	−2.0	11	5,153	s.	25	sw.	27	3	13	14	6.6	0.0	0.0
Peoria	609	11	45	29.26	29.91	−.04	73.4	+2.5	95	30	85	51	9	62	31	66	62	71	4.75	+1.0	15	3,822	ne.	24	sw.	26	12	9	9	4.9	0.0	0.0
Springfield, Ill	636	5	191	29.22	29.88	−.07	75.2	+3.0	95	30	86	56	9	65	27	66	62	68	6.39	+2.3	12	6,085	sw.	34	nw.	18	6	17	7	5.4	0.0	0.0
Hannibal	534	74	109	29.33	29.89	−.06	75.0	+2.5	94	17	85	57	2	66	28	----	----	----	6.71	+2.8	12	4,942	sw.	27	sw.	4	9	15	6	5.2	0.0	0.0
St. Louis	568	265	303	29.29	29.88	−.07	77.6	+2.8	94	30	86	64	9	69	23	68	62	64	2.45	−1.4	13	6,226	s.	35	sw.	2	10	15	5	5.1	0.0	0.0
Missouri Valley							**73.4**	**+2.6**										**69**	**4.59**	**+0.3**										**5.0**		
Columbia, Mo	784	6	84	29.06	29.87	−.08	75.1	+2.3	95	17	84	60	28	66	27	----	----	----	6.28	+1.5	11	4,463	sw.	24	w.	19	9	10	11	5.5	0.0	0.0
Kansas City	963	10	86	28.86	29.87	−.05	76.5	+2.9	94	30	85	62	19	68	21	67	63	66	2.73	−2.3	11	5,431	s.	30	nw.	8	7	18	5	5.1	0.0	0.0
St. Joseph	967	11	49	28.85	29.86	------	74.8	------	94	29	84	60	28	65	26	67	64	73	6.09	+1.2	14	4,635	se.	27	nw.	2	13	11	6	4.5	0.0	0.0
Springfield, Mo	1,324	98	104	28.51	29.89	−.06	74.2	+1.7	89	23	82	59	13	66	21	67	64	74	10.08	+5.4	15	5,745	s.	30	nw.	20	14	13	3	3.4	0.0	0.0
Iola	984	11	50	28.84	29.85	−.08	75.5	+1.4	93	7	86	60	10	65	27	----	----	----	5.01	−0.5	10	3,848	s.	21	n.	19	12	8	10	5.2	0.0	0.0
Topeka	987	92	107	----	----	----	75.5	+2.1	95	29	86	59	8	66	28	----	----	----	4.46	−0.2	13	5,468	s.	38	nw.	8	11	15	4	4.5	0.0	0.0
Lincoln	1,189	11	81	28.62	29.85	−.05	73.2	+1.8	96	30	83	57	20	63	27	66	62	72	4.46	+0.1	12	5,732	s.	38	w.	17	5	13	12	5.9	0.0	0.0
Omaha	1,105	115	122	28.72	29.86	−.05	74.2	+2.6	96	30	83	58	20	65	24	65	61	67	4.79	+0.2	14	4,663	s.	26	w.	9	8	10	12	5.7	0.0	0.0
Valentine	2,598	47	54	27.22	29.88	+.02	68.6	+1.7	93	29	81	48	3	57	35	60	55	66	4.53	+1.7	9	6,441	n.	30	s.	1	5	18	7	5.5	0.0	0.0
Sioux City	1,135	94	164	28.66	29.84	−.06	73.2	+3.7	96	30	83	56	27	63	27	65	60	69	4.95	+1.0	13	6,622	s.	32	se.	16	6	11	13	6.2	0.0	0.0
Huron	1,306	59	74	28.49	29.86	−.02	70.6	+4.4	92	24	82	52	1	60	34	62	57	66	1.98	−1.8	11	6,094	se.	25	se.	16	14	10	6	4.4	0.0	0.0
Pierre	1,572	70	75	28.20	29.84	−.03	71.2	+2.7	97	24	82	50	3	61	33	62	57	65	2.91	0.0	12	6,307	se.	43	ne.	8	12	12	6	4.5	0.0	0.0
Yankton	1,233	49	57	28.57	29.86	−.03	72.9	+4.0	94	22	83	56	27	63	28	----	----	----	1.37	−2.4	11	5,090	se.	25	se.	16	7	15	8	5.2	0.0	0.0

TABLE 1.—*Climatological data for Weather Bureau stations, June, 1932*—Continued

District and station	Elevation of instruments: Barometer above sea level	Elevation of instruments: Thermometer above ground	Elevation of instruments: Anemometer above ground	Pressure: Station, reduced to mean of 24 hours	Pressure: Sea level, reduced to mean of 24 hours	Pressure: Departure from normal	Temperature of the air: Mean max. + mean min. ÷ 2	Temperature of the air: Departure from normal	Temperature of the air: Maximum	Temperature of the air: Date	Temperature of the air: Mean maximum	Temperature of the air: Minimum	Temperature of the air: Date	Temperature of the air: Mean minimum	Temperature of the air: Greatest daily range	Mean wet thermometer	Mean temperature of the dew-point	Mean relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Days with .01, or more	Wind: Total movement	Wind: Prevailing direction	Wind: Maximum velocity: Miles per hour	Wind: Maximum velocity: Direction	Wind: Maximum velocity: Date	Clear days	Partly cloudy days	Cloudy days	Average cloudiness, tenths	Total snowfall	Snow, sleet, and ice on ground at end of month
	Ft.	Ft.	Ft.	In.	In.	In.	°F.	°F.	°F.		°F.	°F.		°F.	°F.	°F.	°F.	%	In.	In.		Miles								0–10	In.	In.
Northern Slope																			2.31	0.0										5.1		
Billings	3,140	5					64.4		98	29	80	39	1	49	46				4.58		12		nw.				11	8	11		0.0	0.0
Havre	2,505	11	44	27.28	29.87	+0.02	64.8	+2.8	93	22	76	48	4	54	33	55	49	64	5.24	+2.4	13	5,773	sw.	33	sw.	15	10	12	8	5.4	0.0	0.0
Helena	4,124	89	113	25.76	29.89	+.01	62.1	+2.9	90	28	74	40	5	51	34	51	42	56	2.05	−0.3	10	6,197	sw.	32	sw.	22	9	11	10	5.8	0.0	0.0
Kalispell	2,973	48	56	26.89	29.90	+.03	61.2	+3.5	89	22	74	34	5	49	34	51	43	58	0.50	−1.6	5	4,699	nw.	21	sw.	29	8	13	9	5.2	0.0	0.0
Miles City	2,371	48	55	27.38	29.88	+.03	68.4	+2.4	98	29	79	48	1	57	34	58	52	63	2.29	−0.4	11	4,172	s.	26	nw.	7	11	12	7	4.8	0.0	0.0
Rapid City	3,259	50	58	26.54	29.89	+.04	66.4	+2.2	91	29	77	47	3	56	34	57	51	60	2.03	−1.3	12	5,874	w.	27	n.	25	11	15	4	4.4	0.0	0.0
Cheyenne	6,088	84	101	24.01	29.86	+.02	60.3	−0.1	84	15	73	39	2	48	34	49	42	57	1.64	0.0	9	7,557	nw.	48	s.	3	6	19	5	5.7	0.0	0.0
Lander	5,372	6	68	24.62	29.86	+.01	63.0	+2.5	96	22	77	37	2	49	45	50	42	55	0.93	−0.2	6	3,904	sw.	27	w.	11	12	13	5	4.5	0.0	0.0
Sheridan	3,790	10	47	26.05	29.88		62.2		92	22	76	39	3	48	41	55	50	67	3.55	+1.5	12	3,221	nw.	30	nw.	25	11	13	6	4.6	0.0	0.0
Yellowstone Park	6,241	11	48	23.90	29.92	+.06	55.0	−1.0	85	23	68	31	7	42	37	46	39	62	2.10	+0.2	15	5,292	sw.	25	sw.	15	9	11	10	5.6	T.	0.0
North Platte	2,821	11	51	27.00	29.86	.00	70.2	+2.7	94	30	82	51	3	58	32	62	58	70	2.75	−0.5	12	5,282	s.	29	nw.	16	7	17	6	5.4	0.0	0.0
Middle Slope																			5.85	+2.8										5.1		
Denver	5,292	106	113	24.71	29.85	+.01	66.6	+0.3	92	15	79	46	2	55	37	52	41	46	1.01	−0.4	10	6,101	s.	32	se.	5	10	17	3	4.6	0.0	0.0
Pueblo	4,685	80	86	25.25	29.84	+.01	69.0	0.0	95	15	83	42	6	55	42	53	41	47	1.50	+0.1	9	5,385	e.	30	w.	27	12	15	3	4.4	0.0	0.0
Concordia	1,392	50	58	28.44	29.87	−.03	74.3	+1.3	97	29	85	59	15	64	28	66	62	69	6.07	+1.7	11	4,902	s.	27	se.	18	11	12	7	5.0	0.0	0.0
Dodge City	2,559	10	86	27.33	29.87	.00	75.0	+0.5	96	30	84	54	6	62	34	64	59	69	4.46	+1.2	15	7,828	s.	34	nw.	18	14	13	3	4.2	0.0	0.0
Wichita	1,358	85	93	28.46	29.85	−.06	75.0	+0.6	97	17	85	59	6	65	25	67	62	69	7.92	+3.5	12	6,616	se.	28	w.	18	5	13	12	6.2	0.0	0.0
Oklahoma City	1,214	10	47	28.61	29.85	−.06	76.8	+0.8	95	17	87	59	12	67	28	69	66	76	14.12	+10.4	16	6,379	s.	30	w.	5	6	11	13	6.2	0.0	0.0
Southern Slope																			3.68	+1.2										4.0		
Abilene	1,738	10	52	28.07	29.83	−.05	79.6	+0.4	99	16	90	62	11	69	32	69	64	65	4.13	+1.1	10	7,721	s.	32	n.	20	12	10	8	4.4	0.0	0.0
Amarillo	3,676	10	49	26.20	29.84	−.01	72.6	−0.2	96	16	84	53	6	61	33	62	57	66	9.24	+6.4	14	5,888	se.	30	sw.	18	12	13	5	4.8	0.0	0.0
Big Spring	2,537	5	62				77.8		102	16	89	52	21	67	30				3.82		8		se.				15	10	5	3.8	0.0	0.0
Del Rio	944	64	71	28.81	29.76	−.09	84.6	+1.2	103	17	94	69	5	75	28	71	65	57	0.04	−2.5	2	9,285	se.	37	e.	5	9	15	6	4.7	0.0	0.0
Roswell	3,566	75	85	26.26	29.77	−.03	76.2	−0.1	103	18	91	50	1	62	42	58	44	43	1.3	−0.3	6	5,888	se.	31	ne.	10	20	10	0	2.5	0.0	0.0
Southern Plateau																			0.56	+0.2										2.3		
El Paso	3,778	152	175	26.06	29.72	−.03	81.0	+1.4	104	14	95	57	5	67	39	57	34	24	0.15	−0.4	3	6,937	e.	35	ne.	30	26	1	3	1.7	0.0	0.0
Albuquerque	4,972	51	66	24.98	29.71		71.6		95	29	87	48	6	56	39	52	34	32	0.09		3	4,353	sw.	26	nw.	20	17	10	3	3.2	0.0	0.0
Santa Fe	7,013	38	56	23.26	29.76	−.05	63.4	−1.4	86	29	77	38	1	50	33	48	34	37	1.82	+0.7	7	4,379	sw.	21	s.	3	15	11	4	3.7	0.0	0.0
Flagstaff	6,907	10	59	23.34	29.77	−.01	58.7	−0.6	88	25	76	29	8	41	47	43		45	0.57		4	6,192	sw.	26	sw.	15	14	12	4		T.	0.0
Phoenix	1,108	10	107	28.58	29.70	−.04	85.0	+0.5	113	27	101	55	5	69	40	59	36	23	0.23	+0.2	4	4,573	w.	21	w.	30	24	5	1	1.7	0.0	0.0
Yuma	141	9	54	29.56	29.70	−.04	83.8	−0.9	110	28	101	58	1	66	42	64	50	38	T.	0.0	0	4,007	sw.	18	w.	3	26	4	0	1.0	0.0	0.0
Independence	3,957	6	27	25.88	29.83	+.05	73.2	+0.9	102	23	90	39	6	56	42	52			0.61	+0.5	4		nw.				24	1	5		0.0	0.0
Middle Plateau																			1.09	+0.6										3.5		
Reno	4,532	74	81	25.42	29.83	−.03	66.8	+5.8	100	30	83	35	6	51	41	50	38	44	1.40	+1.1	6	5,316	w.	31	sw.	14	20	7	3	3.2	T.	0.0
Tonopah	6,090	12	20				65.4		92	24	76	32	6	54	30	48	31	36	0.30		4		nw.									
Winnemucca	4,344	18	56	25.56	29.88	.00	65.8	+3.0	99	28	81	35	1	50	44	51	41	52	1.09	+0.4	9	5,015	ne.	32	sw.	14	19	6	5	3.4	T.	0.0
Modena	5,473	10	46	24.56	29.80	−.02	62.7	−0.6	94	22	80	29	7	46	43	47	33	43	1.12	+0.8	5	6,562	sw.	43	nw.	5	17	10	3	3.6	0.0	0.0
Salt Lake City	4,360	163	203	25.56	29.85	.00	67.8	+0.4	95	28	79	40	6	57	31	52	39	40	1.41	+0.6	8	5,652	nw.	44	sw.	28	15	11	4	3.7	0.0	0.0
Grand Junction	4,602	60	68	25.30	29.81	−.02	69.8	−1.6	97	30	84	40	7	56	35	51	35	34	0.45	0.0	6	5,229	se.	40	se.	22	13	16	1	3.7	0.0	0.0
Northern Plateau																			0.46	−0.7										3.8		
Baker	3,471	48	53	26.42	29.96	+.01	60.4	+1.8	91	28	75	35	5	46	40	50	41	53	0.43	−0.9	5	4,918	se.	20	ne.	12	13	12	5	4.0	0.0	0.0
Boise	2,739	79	87	27.09	29.90	−.01	67.2	+1.9	98	28	80	40	5	54	37	54	44	50	0.55	−0.4	7	4,079	nw.	25	ne.	14	10	13	7	4.7	0.0	0.0
Lewiston	757	40	48	29.12	29.92	−.02	69.8	+3.2	101	21	85	46	5	55	43				0.50	−0.9	1	2,998	e.	23	nw.	29	16	8	6	3.9	0.0	0.0
Pocatello	4,477	60	68	25.44	29.88	+.01	63.3	+1.1	95	29	77	37	5	50	37	51	42	55	1.32	+0.2	9	5,421	se.	27	sw.	27	10	14	6	4.5	0.0	0.0
Spokane	1,929	101	110	27.90	29.92	−.02	66.4	+3.6	93	21	79	41	5	54	36	52	40	46	0.28	−1.0	6	4,815	s.	24	sw.	4	13	10	7	4.4	0.0	0.0
Walla Walla	991	57	65	28.86	29.92	−.04	70.2	+3.7	97	28	83	45	5	58	35	54	41	39	0.06	−1.1	1	4,089	sw.	16	w.	1	20	7	3	2.9	0.0	0.0
Yakima	1,076	58	67	28.80	29.94		70.2	+3.8	98	28	84	46	5	56	36	53	38	37	0.06	−0.5	1	5,570	nw.	22	nw.	2	22	5	3	2.5	0.0	0.0
North Pacific Coast Region																			0.91	−0.7										5.0		
North Head	211	11	56	29.84	30.07	+.08	54.0	−0.8	76	10	58	46	4	50	23	51	49	86	1.32	−1.0	10	10,893	n.	34	nw.	4	6	4	20	7.1	0.0	0.0
Port Angeles	29	8	53	30.04	30.07		56.2		80	11	65	41	5	48	31				0.64	−0.2	2	6,112	w.	23	w.	14	13	12	5	4.2	0.0	0.0
Seattle	125	215	250	29.89	30.02	+.02	61.8	+2.8	89	10	71	45	4	53	28	53	47	63	0.17	−1.2	4	5,285	ne.	18	s.	15	13	9	8	4.7	0.0	0.0
Tacoma	194	172	201	29.83	30.03	.00	61.6	+2.9	90	10	71	44	5	52	33				0.10	−1.4	3	5,726	n.	21	sw.	14	12	9	9	4.7	0.0	0.0
Tatoosh Island	86	9	53	29.96	30.06	+.04	53.2	+0.2	70	10	57	46	5	50	18	51	49	88	2.74	−0.5	9	6,929	sw.	33	e.	10	4	8	18	7.4	0.0	0.0
Medford	1,329	29	58	28.55	29.93		66.8		100	30	83	40	7	50	44	55	48	60	1.77	+1.0	4	4,473	nw.	30	w.	10	13	13	4	3.9	0.0	0.0
Portland, Oreg.	153	68	106	29.85	30.01	−.03	65.8	+3.4	91	10	76	46	17	55	32	56	50	62	0.07	−1.4	1	4,991	nw.	19	ne.	9	11	10	9	4.8	0.0	0.0
Roseburg	510	75	99	29.45	29.99	−.04	65.2	+2.7	92	10	78	43	17	52	41	55	47	60	0.46	−0.6	5	4,044	n.	18	n.	27	17	9	4	3.3	0.0	0.0
Middle Pacific Coast Region																			0.04	−0.3										2.7		
Eureka	62	73	89	29.95	30.02	−.03	54.2	−0.1	64	19	58	43	6	50	16	51	49	86	0.11	−0.6	3	5,695	n.	25	n.	5	11	10	9	5.0	0.0	0.00
Red Bluff	330	5	58	29.47	29.81	−.07	78.9	+4.1	112	30	94	50	1	64	37	61	47	40	0.04	−0.4	1	4,484	nw.	21	n.	5	23	6	1	1.8	0.0	0.0
Sacramento	69	106	117	29.75	29.82	−.07	71.6	+2.2	105	29	87	48	12	56	46	58	49	53	T.	−0.2	0	6,526	s.	22	sw.	4	28	2	0	0.5	0.0	0.0
San Francisco	155	208	243	29.72	29.90	−.06	59.2	+0.7	82	8	66	49	18	52	26	53	49	76	0.03	−0.2	1	5,930	sw.	26	nw.	1	14	13	3	4.0	0.0	0.
San Jose	141	12	110	29.75	29.90		65.6	+0.6	92	8	78	46	6	53	39				0.00	−0.1	0	4,805	nw.	22	sw.	4	23	5	2	2.0	0.0	0.0
South Pacific Coast Region																			0.05	0.0										2.9		
Fresno	327	89	98	29.46	29.80	−.05	76.9	+1.1	108	30	93	52	15	61	39	59	46	41	0.00	−0.1	0	5,891	nw.	21	nw.	2	29	1	0	0.5	0.0	0.0
Los Angeles	338	159	191	29.52	29.88	−.02	66.2	−0.2	93	20	75	55	15	58	31	59	55	72	0.13	0.0	2	3,975	sw.	14	sw.	21	19	6	5	3.5	0.0	0.0
San Diego	87	62	70	29.79	29.88	−.04	63.8	−0.1	79	20	68	55	4	59	20	59	56	79	0.01	0.0	1	5,106	w.	17	nw.	18	10	16	4	4.7	0.0	0.0
West Indies																																
San Juan, P. R.	82	9	54	29.90	29.99		80.8	+1.1	92	7	86	71	19	76	14				8.98	+3.7	22	7,729	e.	29	e.	27	3	23	4	6.0	0.0	0.0
Panama Canal																																
Balboa Heights	118	6	97		[1] 29.82	−.01	79.8	−0.3	90	12	86	70	14	74	17			[1] 86	9.23	+1.2	18	3,484	nw.	30	s.	27	0	8	22	8.2	0.0	0.0
Cristobal	36	6	97		[1] 29.82	−.01	81.2	+0.8	92	7	87	73	30	76	17	76	75	[1] 85	14.36	+0.7	23	3,679	se.	30	ne.	16	1	4	25	8.3	0.0	0.0
Alaska																																
Fairbanks	455	11	44	[2] 29.29	[2] 29.80		55.0		79	20	66	32	8	44	32	48	41	66	1.66		13	3,938	w.	23	ne.	23	2	12	16	6.9	0.0	0.0
Juneau	80	11	50	[2] 29.89	[2] 29.98		49.4		65	19	54	40	7	45	20	46	43	82	10.59		25	4,997	s.	23	s.	20	0	2	28	9.3	0.0	0.0
Hawaiian Islands																																
Honolulu	38	86	100	[2] 30.02	[2] 30.06		75.8	−0.8	82	30	80	68	21	72	12	68	65	70	0.29	−0.6	10	6,744	e.	21	e.	15	15	13	2	3.9	0.0	0.0

[1] Observations taken hourly.

[2] Pressure not reduced to mean of 24 hours.

TABLE 2.—*Data furnished by the Canadian Meteorological Service, June, 1932*

Stations	Altitude above mean sea level, Jan. 1, 1919	Pressure			Temperature of the air						Precipitation		
		Station reduced to mean of 24 hours	Sea level reduced to mean of 24 hours	Departure from normal	Mean max.+ mean min.÷2	Departure from normal	Mean maximum	Mean minimum	Highest	Lowest	Total	Departure from normal	Total snowfall
	Feet	*Inches*	*Inches*	*Inches*	°F.	°F.	°F.	°F.	°F.	°F.	*Inches*	*Inches*	*Inches*
Cape Race, N. F.	99				45.1		52.7	37.5	75	29	2.01		0.0
Sydney, C. B. I.	48												
Halifax, N. S.	88												
Yarmouth, N. S.	65												
Charlottetown, P. E. I.	38												
Chatham, N. B.	28												
Father Point, Que.	20	29.75	29.77	−.10	53.0	0.0	61.0	45.0	75	34	2.56	−0.42	0.0
Quebec, Que.	296	29.50	29.81	−.11	61.8	+0.6	72.4	51.2	86	37	2.82	−0.83	0.0
Doucet, Que.	1,236				55.4		70.7	40.2	87	21	4.89		0.0
Montreal, Que.	187	29.62	29.82	−.12	65.6	+0.7	74.8	56.3	87	43	5.53	+2.00	0.0
Ottawa, Ont.	236	29.58	29.84	−.10	65.3	0.0	76.4	54.1	87	41	2.43	−0.49	0.0
Kingston, Ont.	285	29.58	29.89	−.08	64.3	+0.9	71.2	57.4	85	39	1.93	−0.50	0.0
Toronto, Ont.	379	29.50	29.89	−.08	66.4	+3.0	75.7	57.0	83	43	1.00	−1.80	0.0
Cochrane, Ont.	930				59.8		73.0	46.7	88	31	1.74		T.
White River, Ont.	1,244	29.58	29.87	−.07	58.5	−0.2	75.5	41.5	88	28	1.12	−1.10	0.0
London, Ont.	808				63.6		73.9	53.3	84	35	0.90		0.0
Southampton, Ont.	656	29.20	29.91	−.06	61.6	+1.2	70.2	52.9	82	35	1.65	−0.70	0.0
Parry Sound, Ont.	688	29.22	29.90	−.06	63.4	+1.7	73.4	53.3	87	41	3.00	+0.58	0.0
Port Arthur, Ont.	644	29.20	29.91	−.03	60.0	+3.6	69.0	51.1	80	41	2.82	+0.09	0.0
Winnipeg, Man.	760	29.06	29.87	−.02	67.9	+5.7	79.1	56.7	91	42	2.91	−0.38	0.0
Minnedosa, Man.	1,690	28.06	29.84	−.05	64.2	+4.6	74.4	54.1	85	45	5.32	+2.32	0.0
Le Pas, Man.	860				64.3		75.1	53.6	86	45	3.89		0.0
Qu'Appelle, Sask.	2,115	27.60	29.81	−.06	61.9	+2.0	73.1	50.6	84	42	4.18	+0.76	0.0
Moose Jaw, Sask.	1,759				65.2		77.6	52.7	92	45	5.73		0.0
Swift Current, Sask.	2,392	27.34	29.81	−.06	63.1	+3.1	75.0	51.1	95	40	2.62	−0.05	0.0
Medicine Hat, Alb.	2,365												
Calgary, Alb.	3,540												
Banff, Alb.	4,521												
Prince Albert, Sask.	1,450	28.32	29.87	.00	62.1	+4.4	72.3	51.9	84	44	5.32	+2.81	0.0
Battleford, Sask.	1,592	28.14	29.85	−.01	60.9	+1.4	72.4	49.4	85	36	3.02	−0.29	0.0
Edmonton, Alb.	2,150												
Kamloops, B. C.	1,262												
Victoria, B. C.	230	29.78	30.03	+.02	58.6	+2.3	67.1	50.2	88	45	0.91	−0.29	0.0
Barkerville, B. C.	4,180												
Estevan Point, B. C.	20												
Prince Rupert, B. C.	170												
Hamilton, Ber.	151	29.95	30.11	−.01	75.7	+0.7	80.3	71.2	86	65	3.17	−2.78	0.0

SEVERE LOCAL STORMS, JUNE, 1932

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path (yards)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Peru to Longton (near), Kans.	1	a. m.	[1] 3			Heavy hail	Crops beaten to ground; path 25 miles long	Official, U. S. Weather Bureau.
Hoxie, Kans. (6 miles northwest.	1	4:30 p. m.	100		$10,000	Tornado	Farm buildings demolished; path 6 miles long	Do.
Evansville and Warsaw, Ind.	1				8,000	Wind and electrical.	Considerable damage, chiefly by lightning	Do.
Sparks, Nebr.	1	p. m.	[1] 2			Rain and hail	Small grains, corn and gardens considerably damaged; path 2 miles long.	Do.
Timber Lake, S. Dak. (west of).	2	3 p. m.	[1] 2		2,000	Hail	Crops injured	Do.
Brookville, Kans. (near)	2	5:30 p. m.				2 tornadoes	Mostly over open country, few farm buildings struck.	Do.
Shenandoah, Iowa (north of).	2	do	100		3,000	do	Fair ground buildings, trees and wires damaged; path 2 miles long.	Do.
Carey (near), Tex.	2	7 p. m.	[1] 2			Heavy hail	75 per cent crop loss	Do.
Norfolk, Nebr.	2	8 p. m.	[1] 3			do	Considerable damage over small area; path 3 miles long.	Do.
Arnett, Okla. (8 miles south).	2					do	Poultry killed, auto tops riddled, gardens ruined	Do.
Buffalo (near), N. Y.	2				9,000	Thunderstorm	Buildings damaged by lightning	Do.
Knox, La Salle, and Macoupin Counties, Ill.	2				57,500	Wind and electrical.	Many buildings damaged, poles blown down, barn burned, some livestock killed.	Do.
Tribune (near) Kans.	3	3:35–6 p. m.			5,000	Heavy hail	No details	Do.
Otsego County, N. Y. (southern).	3			1		Thunderstorm	Telephone and power lines damaged; crops washed out.	Do.
Solano, Miami, and Bueyeros, N. Mex.	4	a. m.				Heavy hail	Much damage to crops and gardens	Do.
Elkhart (near) to Big Bow (near) Kans.	4	4 p. m.	800		35,000	Tornado	Farm buildings damaged or wrecked; poultry killed; 1 person injured; path 50 miles long.	Do.
Laredo, Tex.	4	10:30 p. m.				Wind	Roofs damaged; signs blown down	Do.
Galena, Ill.	4					Electrical	9 cows and 1 horse killed	Do.
Buffalo, N. Y., and vicinity.	5				5,000	Thunderstorm	Buildings damaged by lightning	Do.
Washington County, Okla. (northern).	5		[1] 10			Heavy hail	Considerable crop injury; minor damage to other property; path 20 miles long.	Do.
Henry County, Iowa	6	6 p. m.	[1] 2			Wind, hail and electrical.	Oats badly damaged, other crops injured; 2 horses killed.	Do.
Mechanicville, Md.	6					Heavy hail	Much damage to crops	Do.
Ulster County, N. Y. (southeast).	6				40,000	do	Chief damage to fruit	Do.
Redig, S. Dak.	7	3 p. m.	[1] 5		3,000	Hail and tornado	Chief damage to crops	Do.
Gill to Slim Butte, S. Dak.	7	6 p. m.	880		3,600	do	do	Do.

[1] Miles instead of yards.

SEVERE LOCAL STORMS, JUNE, 1932—Continued

Place	Date	Time	Width of path (yards)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Edgemoor, S. C.	7	6:15 p. m.	500		$3,500	Tornado	Farm property damaged; path one-half mile long.	Official, U. S. Weather Bureau.
Louisa County, Iowa	7	3 p. m.				Rain and electrical.	Heavy damage to crops by erosion; much farm land inundated near Fredonia.	Do.
Swansea, S. C.	7	P. m.			1,000	Electrical	Residence damaged by lightning	Do.
Mills County, Iowa	8	3:10 a. m.			3,000	Tornado and hail.	Buildings and crops damaged	Do.
Shawnee County, Iowa	8	11:30 a. m.	[1] 2		20,000	Heavy hail	Potato, corn, and truck crops hurt; path 2 miles long.	Do.
Jefferson County, Okla.	8	2 and 6 p. m.			8,000	do	Fruit injured; poultry killed	Do.
Hobart (near), Kans.	8	4:30 p. m	[1] 2.5		50,000	do	Chief damage to crops; path 14 miles long	Do.
Leavenworth County, Kans.	8	p. m.	[1] 4			do	Wheat beaten, other crops destroyed; roofs damaged; path 4 miles long.	Do.
Towner (near), Colo., to Tribune (near), Kans.	8	do	[1] 4			do	Extensive crop damage; path 9 miles long	Do.
Logan, Ala.	8					do	Chief damage to cotton	Do.
Lake Alice, N. Mex.	9	11 a. m.	880			do	Roofs, crops, and gardens suffered	Do.
Clark County, Kans.	9	2 p. m.	[1] 3		15,000	do	Chief damage to wheat; path 15 miles long	Do.
Fremont County, Iowa	9	2:30 p. m.			43,000	Wind, hail, and flood.	Chief damage to crops	Do.
Rushville, Mo. (vicinity of).	9	3 p. m.				Tornado	Mostly over Missouri River and waste lands	Do.
Lakeside, Nebr. (7 miles south).	9	4 p. m.	16			do	Farm building demolished	Do.
Haven (near), Kans.	9	5:30 p. m.	2,600		1,000	Heavy hail	Wheat damaged 20 to 75 per cent; path 4 miles long.	Do.
Overbrook (near), Kans.	9	6 p. m.	2,500		do	do	Wheat and oats injured; path 2 miles long	Do.
Wichita and Clay Counties, Tex.	9	6–6:30 p. m.			32,000	do	Buildings, planes, and crops damaged	Do.
Sligo, Strasburg, and Byers, Colo.	9	P. m.				Hail	Field crops and gardens damaged; poultry killed.	Do.
Arkansas City, Ark.	9					do	Crops considerably damaged	Do.
Cheyenne, Wyo., and vicinity.	9					Heavy hail	Chief damage to alfalfa	Do.
Williston, N. Dak.	9					Downpour	Parts of city under several feet of water; considerable damage to cellars, gardens, and roadways.	Do.
Yoakum, Tex.	10	7 a. m.	[1] 2		2,000	Wind	Buildings damaged	Do.
Colorado Springs, Colo.	10	1:40 p. m.	[2] 3	1	50,000	Tornado	About 40 homes damaged; power, light, and telephone services disrupted; trees uprooted.	Do.
Briggsdale, Colo. (12 miles northeast).	10	2 p. m.	[1] 2			Hail	Crops and gardens hurt; auto tops pierced	Do.
Oshkosh, Nebr.	10	2:30 p. m.	[1] 3			do	Crops damaged; path 15 miles long	Do.
Julesburg, Colo.	10	4:30 p. m.	[1] 2		5,000	do	Character of damage not reported	Do.
Clovis, N. Mex.	10	6:35 p. m.	100		15,000	Tornado	Buildings, warehouses, and storage tanks wrecked.	Do.
Lamesa (near), Tex.	10	7 p. m.	[1] 3			Heavy hail	35,000 acres of crops damaged	Do.
Calhoun Falls, S. C.	10	9:10 p. m.	25		500	Tornado	Outbuildings damaged; path 3 miles long	Do.
Cheyenne to Pine Bluff, Wyo.	10		[1] 3–8			Heavy hail	Wheat, rye, and alfalfa ruined; poultry killed; roofs and auto tops damaged; path 40 miles long.	Do.
Sligo, Colo. (6 miles southwest.)	10					do	Considerable crop loss	Do.
Cass County, Iowa	11	5:30 p. m.				Rain, hail, and electrical.	25 hogs drowned; truck crops damaged; 1 person injured.	Do.
Ottawa (near), Kans.	11	7–7:30 p. m.	[1] 2			Heavy hail	Growing crops damaged; path 10 miles long	Do.
Jefferson County, Okla.	11					2 hail storms	Considerable crop damage	Do.
Ravenna, Nebr. (4 miles north).	11		[1] 3		5,000	Hail	Considerable crop damage in places; path 12 miles long.	Do.
Fort Lupton, Colo. (6 miles north).	12	3 p. m.	880–1,760			do	Total loss of some crops; much replanting necessary.	Do.
Grand Island, Nebr. (south of).	12	3–4:45 p. m.			6,000	do	Crops hurt; poultry killed, windows, roofs, and auto tops damaged.	Do.
Willis, Robinson, and Everest, Kans. (vicinity of).	12	6 p. m.	[1] 2–3		25,000	Heavy hail	Severe crop damage; poultry killed; path 6 miles long.	Do.
Rooks and Ellis Counties, Kans.	12	7 p. m.	[1] 2		40,000	do	Wheat total loss in places; path 21 miles long	Do.
Clifton to Clay Center and Miltonville, Kans.	12	7:15–8:15 p. m.	[1] 20		35,000	do	50 per cent wheat and corn ruined; path 30 miles long.	Do.
Warren, Mahaska, and Decatur Counties, Iowa.	12	P. m.				Hail	Chief damage to fruit crop	Do.
Holt County, Nebr. (central).	12	do	[1] 1.5			do	Small grains and potatoes considerably damaged; path 30 miles long.	Do.
Kiowa, Pratt, and Stevens Counties, Kans.	12	do				Heavy hail	Wheat badly damaged	Do.
Clark County, Kans.	13	1 a. m.	[1] 3		10,000	do	Crops damaged; path 15 miles	Do.
Shelby County, Iowa	13	3 p. m.			7,000	Hail and flood	Chief damage to crops	Do.
Storm Lake, Iowa (1 mile south).	13	do	34		500	Tornado	Crops and fences destroyed; path 1 mile long	Do.
Doniphan County, Kans.	13	4 p. m.	1,760		25,000	Heavy hail	Chief damage to fruit and other crops between Troy and Wathena; path 9 miles long.	Do.
Strong City, Okla.	13	6 p. m.	[1] 1.5		1,000	do	Crops hurt; path 2 miles long	Do.
Vance, N. Mex.	13	7:30 p. m.				do	Crops damaged; much replanting necessary	Do.
Bean Lake, Mo.	13	8–8:30 p. m.			8,000	Tornado	Damage near De Kalb; character not reported	Do.
Fayette County, Iowa	13	P. m.	[1] 3			Wind and hail	Heavy damage to corn and small grains	Do.
Mahaska, Poweshiek, and Warren Counties, Iowa.	13					Hail	Heavy damage to crops and gardens; some poultry and small pigs killed.	Do.
Grundy County, Iowa	14	1 p. m.	[1] 2			Severe hail	Crops practically ruined	Do.
Lakeview, S. Dak. (north of).	14	4 p. m.	1,760			Hail	Crops hurt	Do.
Morrillton and Little Rock, Ark.	14					Heavy hail	Truck crops damaged; roofs pierced	Do.
Abbeville, La. (3 miles north).	14	5:40–7 p. m.	[1] 5			do	Many windows broken; cotton, corn, and truck damaged.	Do.
Springfield, Ill.	14		1,760			do	Gardens, roofs and auto tops damaged; minor damage to buildings and trees; path 5 miles long.	Do.
Cedartown, Ga., and vicinity.	15	3 p. m.	[1] 3		15,000	do	Crops severely damaged; birds and poultry killed; path 8 miles long.	Do.
Commerce (near), Ga.	15	5 p. m.	1,760			do	Heavy damage to peach orchards; path 8 miles long.	Do.
Pondera, Toole, Cascade, Lewis and Clark, and Carter Counties, Mont.	15					do	No details	Do.

[1] Miles instead of yards.

[2] Blocks.

SEVERE LOCAL STORMS, JUNE, 1932—Continued

Place	Date	Time	Width of path (yards)	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Savannah, Ga	15					Thunderstorm and wind.	Trees, roofs, and signs damaged	Official, U. S. Weather Bureau.
Pine Ridge, S. Dak	16	6 p. m	70		$50,000	Tornado	Indian school and agency buildings and many residences damaged.	Do.
Huxford to Escambia, Ala	16					Hail	Crops considerably damaged	Do.
Lake Hamilton, Ohio	16			2		Electrical	15 shocked or injured	Do.
Eastern Montana	16					Heavy hail	No details	Do.
Nemaha and Brown Counties, Kans.	17	6-6.30 p. m	880		25,000	Tornado and hail	Chief damage to farm property; path 18 miles long.	Do.
Jessup, Iowa (2 miles west)	17	7 p. m	230		9,000	do	Crops, buildings, and fences damaged; path 9 miles long.	Do.
Winterset, Iowa	17	7.30 p. m			75	Tornado	House and several trees damaged	Do.
Fennimore (near), Wis	17	8-9 p. m			30,000	Wind	6 barns blown down, other buildings damaged; trees uprooted; electric-light poles and wires damaged.	Do.
Liberty, Iowa (west of)	17	9 p. m			10,800	Tornado, hail, and rain.	Barn demolished; home damaged; wire service crippled; crops hurt.	Do.
Worth County, Iowa	17	P. m	[1] 6		90,000	Tornado, wind, rain, and hail.	Crops and buildings damaged; path 10 miles long. Tornado near Kenset and Grafton.	Do.
Iowa	17					Wind, hail, rain, and flood.	Considerable damage over greater part of State, chiefly to crops, wires and buildings; some livestock killed.	Do.
Kirksville, Mo	17					Thunderstorm and squalls.	Trees, wires, poles and small buildings damaged	Do.
Hancock and Warren Counties to De Witt and McLean Counties, Ill.	17-18		[1] 50			Wind and electrical.	Many small losses reported, such as destruction of frail buildings and trees; wires damaged; livestock killed; path 100 miles long.	Do.
Wisconsin (southwest)	17-18					Rain	Grains lodged; soil washed	Do.
Vinita, Okla	18	11:30 a. m.-2:30 p. m.	[1] 6		80,000	2 hail storms	Chief loss to crops; path 15 miles long	Do.
Grove (near), Okla	18	4 p. m	[1] 2		5,100	do	Chief damage to crops; path 3 miles long	Do.
Pampa, Tex	18	do	[1] 6		50,000	do	Crop loss 50 to 90 per cent	Do.
Harper and Sedgwick Counties, Kans.	18	7:45-8:15 p. m.			115,000	Violent wind	Much destruction of property in vicinity of Anthony and Wichita Airport.	Do.
Trenton, Nebr	18	8-10 p. m		1	68,000	Heavy rain	Basements flooded, merchandise ruined; lawns and gardens covered with mud; crops washed out; railroad track undermined; area 24 square miles.	Do.
Greybull (near), Wyo	18					Heavy rain and wind.	Stretch of railroad washed out; bridge wrecked; trees uprooted.	Do.
Oregon, Mo	18					Thunder squalls	Trees, wires, poles, and outbuildings damaged	Do.
Scott County, Kans	18	P. m	[1] 24		75,000	Heavy hail	Chief damage to wheat; path 30 miles long	Do.
Overbrook, Kans. (7 miles southwest).	19	4:20 p. m	300		100	Tornado	Few farm buildings damaged	Do.
Alva (near), Okla	19	6 p. m	1,760		30,000	Hail	Crops damaged; path 12 miles long	Do.
Cherokee (near), Okla	19	8 p. m	[1] 1.5		16,000	do	Chief damage to crops; path 3 miles long	Do.
Independence (near), Kans	19	11:45 p. m			1,500	Tornado	Baseball park and small buildings struck; path 1 mile long.	Do.
Fulton, Ill	19				5,000	Thunder squalls	Trees, wires, poles, and outbuildings damaged	Do.
Jacksonville (near), Ill	19					Electrical	3 barns burned	Do.
Calhan, Colo. (southwest of).	20	1 p. m	[1] 1-5			Hail	Severe damage to crops, much replanting necessary.	Do.
Peyton, Colo., and vicinity	20	1:30 - 2:30 p. m.				do	Several houses damaged; stock and crops injured.	Do.
Woodward County, Okla. (western).	20	2-4 p. m	[1] 7		80,000	do	Extensive crop damage; path 30 miles long	Do.
Field, N. Mex	20		[1] 2		10,000	do	Heavy crop loss; roofs and windows damaged	Do.
Kingsport, Tenn., and vicinity.	20				2,000	do	Truck gardens hurt	Do.
Mountain Park, N. Mex	21	9 p. m	[1] 2		3,000	do	Approximately 10 cars of apples destroyed	Do.
Johnstown (near), Pa	21			2		Thunderstorm, rain, and hail.	Fields damaged by washing	Do.
Morley, N. Y	21					Severe thunderstorm.	3 barns, 2 silos, farm implements, and 2 cows burned.	Do.
West Shelby, N. Y	21				5,000	do	House burned	Do.
Southington (near), Conn	22	A. m			5,000	do	Barn burned	Do.
Clayton County, Iowa	22					Rain and wind	Buildings damaged; fields flooded	Do.
Harrison and Pottawattamie Counties, Iowa.	23					Wind and hail	Grains and buildings damaged; livestock injured.	Do.
New Haven, Conn., and vicinity.	23					Wind	Much damage to trees and shrubbery; light and telephone service crippled.	Do.
Clayton, Mills, and Pottawattamie Counties, Iowa.	24	P. m				Rain and flood	Crops, bridges, and roadbeds damaged	Do.
Boone and Hancock Counties, Iowa.	24					Wind	Small building overturned; wheat and oats beaten to ground.	Do.
Stuttgart (near), Ark	24				1,700	Electrical	Barn and contents destroyed	Do.
Battle Ground Springs (near), Colo.	25	11:30 a. m		1		do	Livestock killed by lightning	Do.
Shreveport, La	25	3:30 p. m	17-33		1,000	Tornado	Damage chiefly to roofs; cottage moved from foundation; path 2 miles long.	Do.
Eastern Montana	25					Destructive hail	No details	Do.
Sheridan County, Wyo	25					Hail and wind	Considerable damage to crops	Do.
Wagner (near) to Springfield, S. Dak.	25					Hail	Severe damage to growing crops; path 5 miles long.	Do.
Coldwater, Mich	26					Tornado	No damage	Do.
Richmond, Va	26					Thunderstorm	Church damaged; 200 phones put out of commission.	Do.
Ocate, N. Mex	27	2 p. m	1,760			Heavy hail	Crops and gardens damaged	Do.
Parkersburg, W. Va	27					Wind	Many trees blown down; wire services crippled; 3 roofs torn off; front of building torn out.	Do.
Castle Rock, Colo. (4 miles south).	28	A. m		3	50,000	Heavy rain	Bridge washed out; freight train wrecked; many persons injured.	Do.
Rush (near), Colo	29	4 p. m	[1] 2			Hail and wind	Crop loss 25 per cent; path 4 miles long	Do.
Clayton County, Iowa	29	7 p. m				Tornado	Barn and house damaged; 2 mules killed	Do.
Montgomery County, Iowa	30	5 p. m			3,000	Wind	Buildings and crops damaged	Do.
Bluffton (near), S. C	30	P. m		3		Electrical	No details	Do.
Harrison, Humboldt and Mills County, Iowa.	30	do			32,500	Hail	Crops damaged	Do.
Pocahontas and Pottawattamie Counties, Iowa.	30	do			17,000	Wind and hail	Crops, buildings and auto tops damaged	Do
Valley County, Mont	30					Hail	Chief damage to crops	Do.

[1] Miles instead of yards.

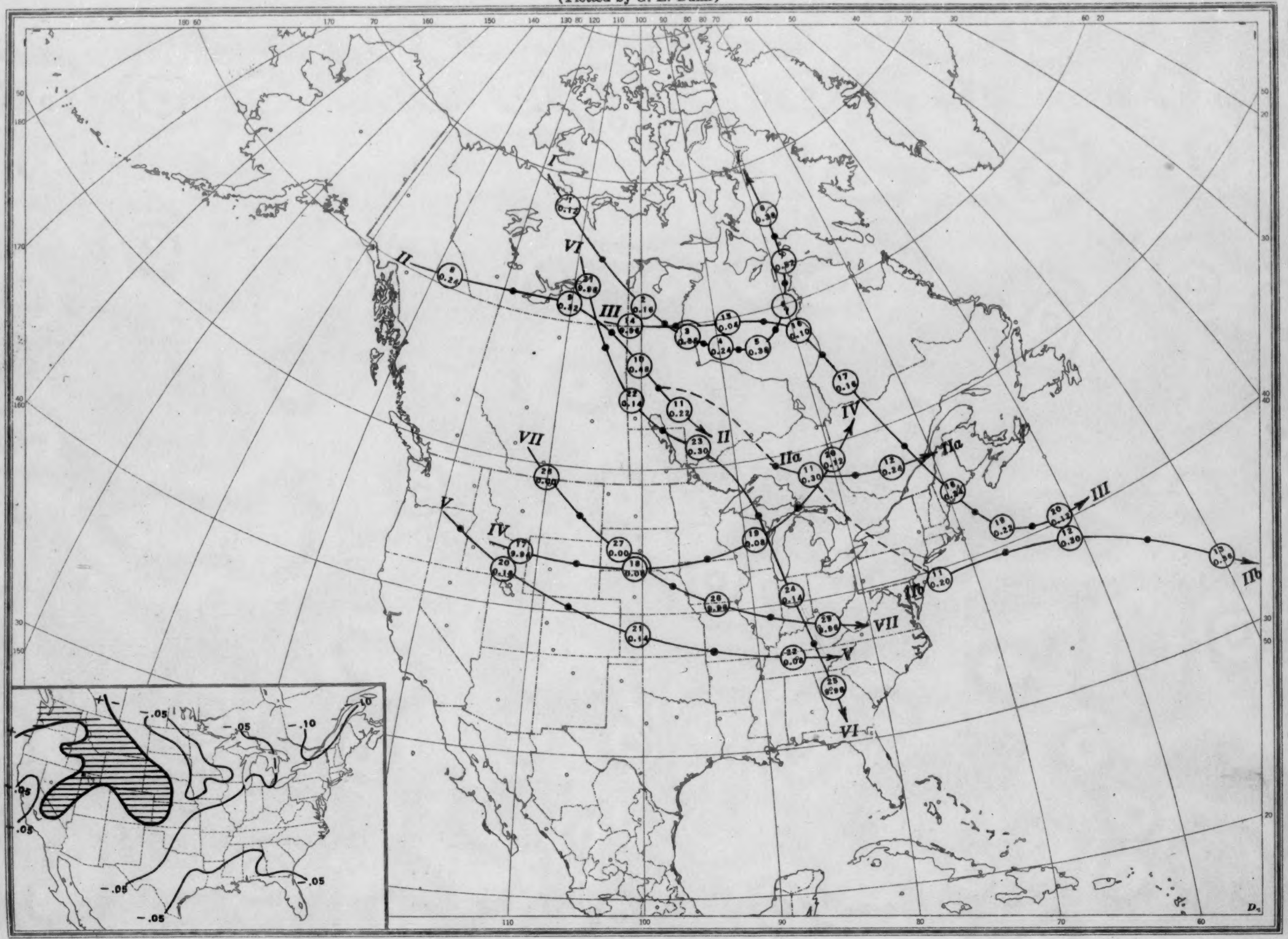
Chart I. Departure (°F.) of the Mean Temperature from the Normal, June, 1932

Shaded portions show excess (+).
Unshaded portions show deficiency (—).
Lines show amount of excess or deficiency.
Statute Miles
Kilometers

UNIV. OF MICH.

Chart II. Tracks of Centers of Anticyclones, June, 1932. (Inset) Departure of Monthly Mean Pressure from Normal

(Plotted by G. E. Dunn)



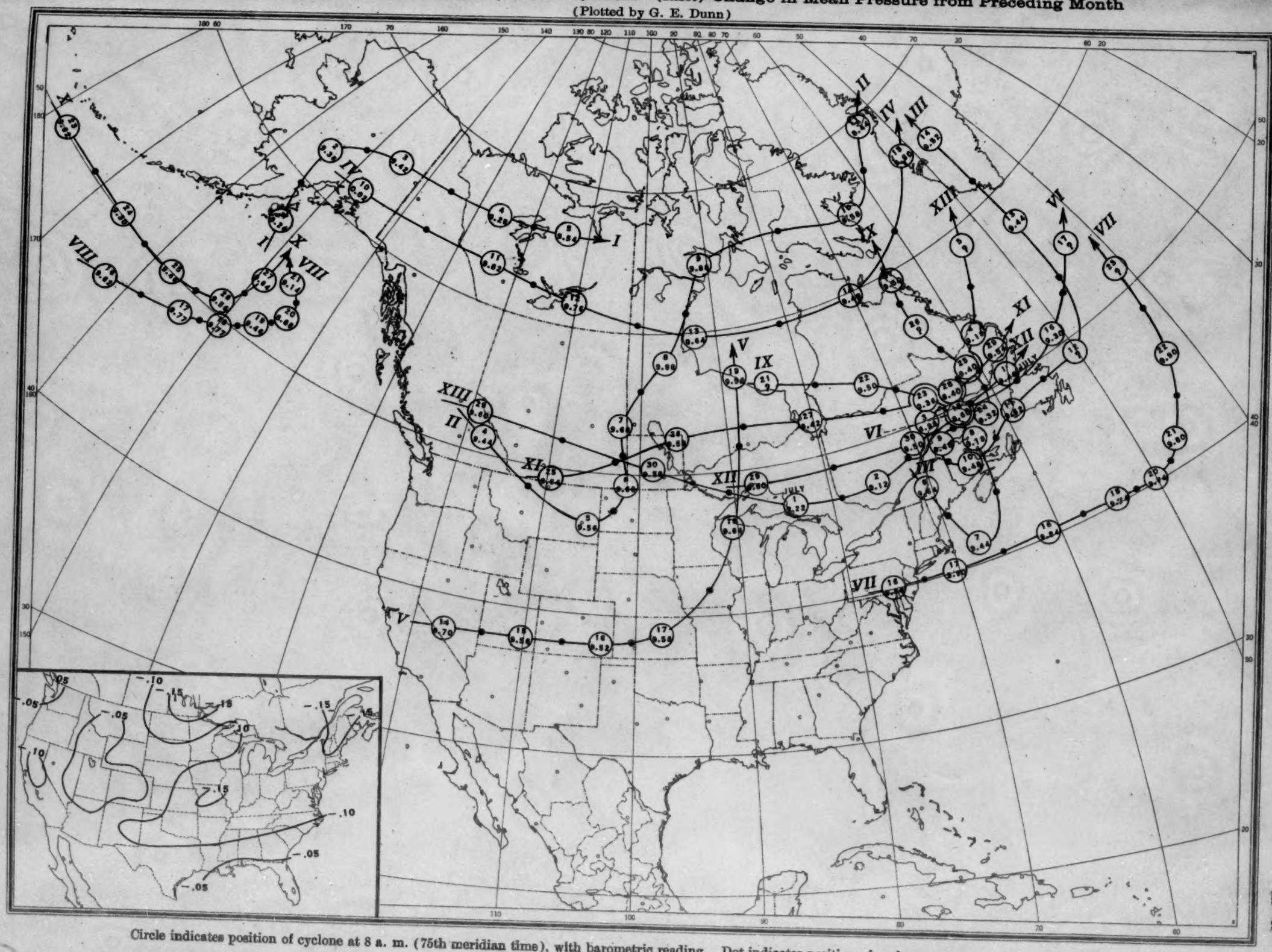
Circle indicates position of anticyclone at 8 a. m. (75th meridian time), with barometric reading. Dot indicates position of anticyclone at 8 p. m. (75th meridian time)

Chart III. Tracks of Centers of Cyclones, June, 1932. (Inset) Change in Mean Pressure from Preceding Month

(Plotted by G. E. Dunn)

Chart III. Tracks of Centers of Cyclones, June, 1932. (Inset) Change in Mean Pressure from Preceding Month

(Plotted by G. E. Dunn)



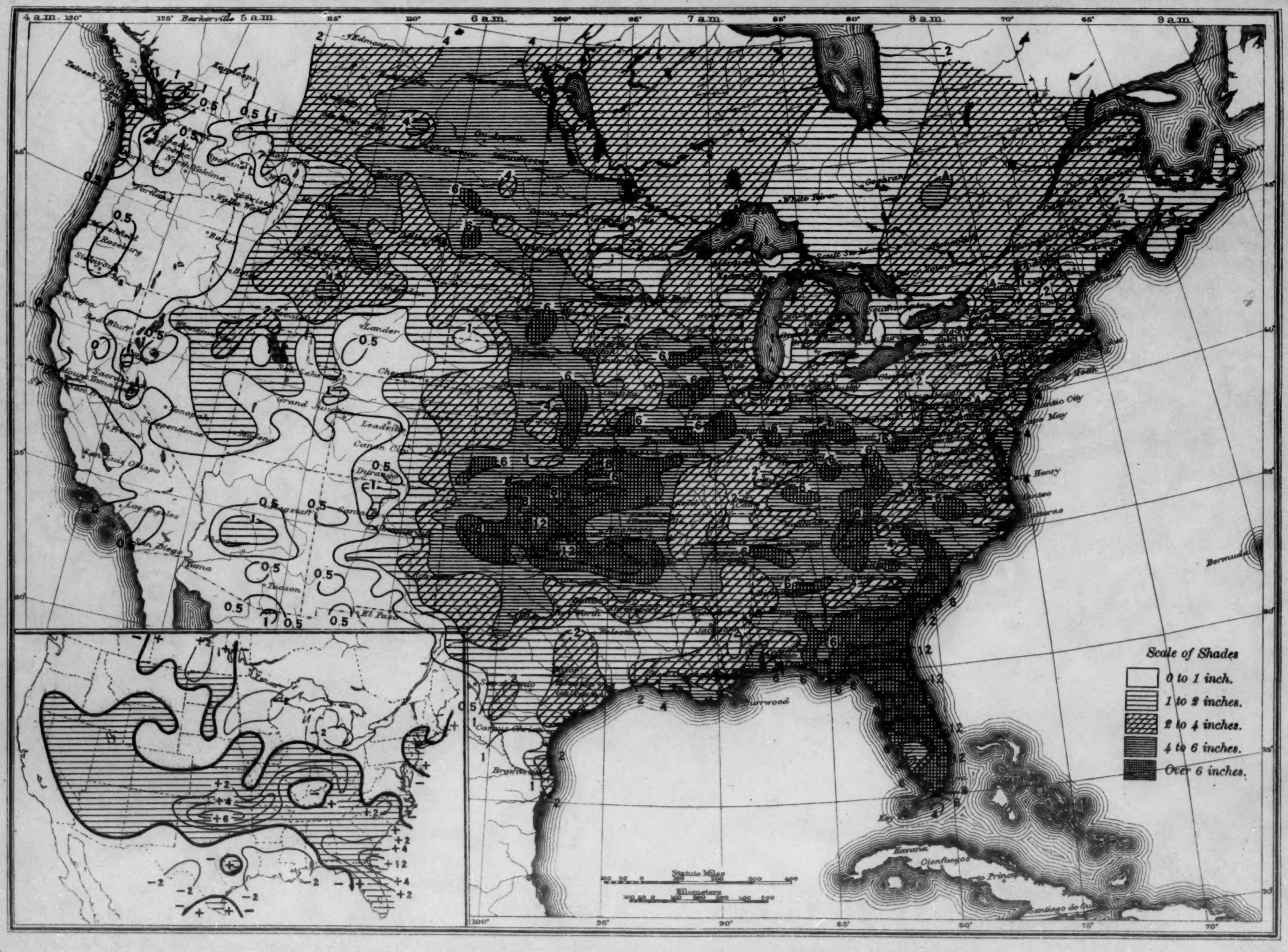
Circle indicates position of cyclone at 8 a. m. (75th meridian time), with barometric reading. Dot indicates position of cyclone at 8 p. m. (75th meridian time).

Chart IV. Percentage of Clear Sky between Sunrise and Sunset, June, 1932

June, 1932. M. W. R.

Chart V. Total Precipitation, Inches, June, 1932. (Inset) Departure of Precipitation from Normal

Chart V. Total Precipitation, Inches, June, 1932. (Inset) Departure of Precipitation from Normal



UNIV. OF MICH.

Chart VI. Isobars at Sea level and Isotherms at Surface; Prevailing Winds, June, 1932